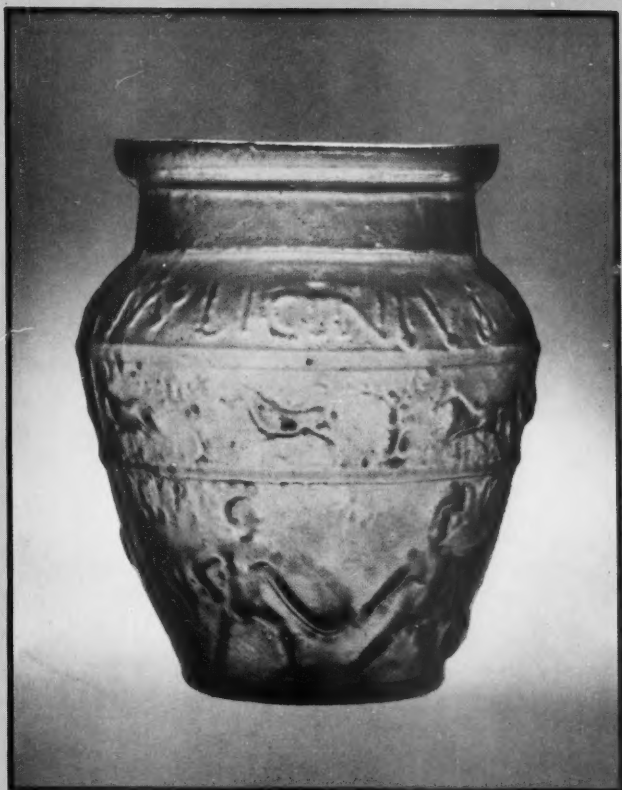


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ARCHAEOLOGY

Spring 1958

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ARCHAEOLOGY

A MAGAZINE DEALING WITH THE ANTIQUITY OF THE WORLD

VOLUME 11 NUMBER

MARCH 1958

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ARCHAEOLOGY is published quarterly in March, June, September and December at 73 Main Street, Brattleboro, Vermont, by the ARCHAEOLOGICAL INSTITUTE OF AMERICA, 5 Washington Square North, New York 3, New York.

Entered as second class matter at the post office at Brattleboro, Vermont, on July 11, 1952, under the Act of August 24, 1912.

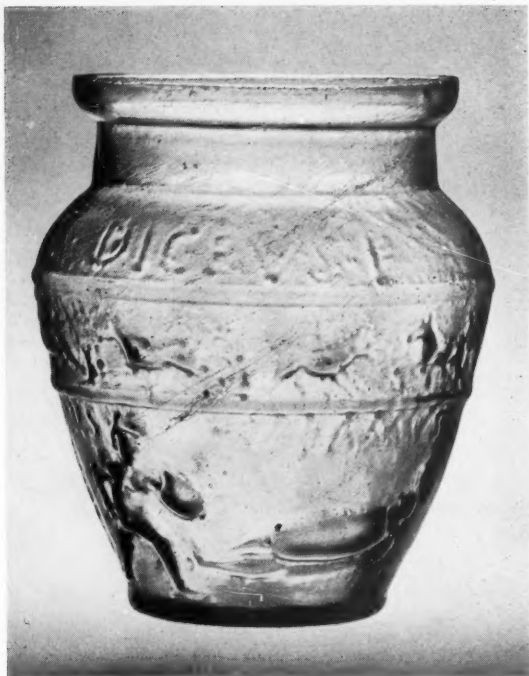
Subscriptions and advertisements should be addressed to the Business Manager at 5 Washington Square North, New York 3, New York (Telephone: ALgonquin 4-5710). Subscription, \$5.00 per volume.

Single numbers, \$1.25. Members of the ARCHAEOLOGICAL INSTITUTE OF AMERICA may choose ARCHAEOLOGY as a perk of membership. Please give four weeks' notice of change of address.

Manuscripts and books for review should be sent to the Editor at 211 Jesse Hall, University of Missouri, Columbia, Missouri.

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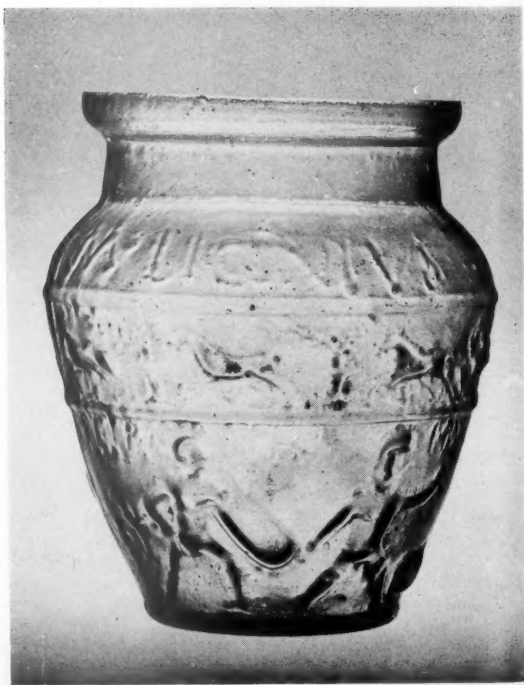
Printed by The Vermont Printing Company, Brattleboro, Vermont.



A ROMAN P

*Color plate on cover
courtesy of the Corning Museum of Glass.*

Glass cup found at Sopron, Hungary. This mold-blown cup pictures two pairs of gladiators in combat. *Above:* the side showing Oriens and Calamus; *right,* Petraites and Prude(n)s. Height $3\frac{3}{4}$ inches. Photographs courtesy of the Corning Museum of Glass.





Extended drawing of the cup, showing maker's name, animal frieze, and two sets of combatants. Drawing by Suzanne Chapman.

SPORTS CUP

By DONALD B. HARDEN

Director of the London Museum

DURING THE FIRST CENTURY of our era some glass-makers who practised the art of mold-blowing produced a group of cups bearing designs which depict scenes of the circus and arena. These cups have for long attracted the interest of scholars and collectors. They could well have been used as ordinary drinking cups, being generally about the size of a smallish tumbler, and the scenes on them represented the popular sports of the day—rather as if we were to use cups bearing pictures of football and baseball players. I do not think we need look farther than this for their use and significance. That they were trophies for victorious gladiators or chariot-eers seems most unlikely, though it has been suggested.

Of the eighty-nine examples known to me forty-six have representations of chariot races, thirty-five depict gladiatorial combats, five show both chariots and gladiators in friezes one above the other, and three display athletic contests. For the most part these examples are represented by fragments; there are only a few even tolerably complete pieces. The only one which is entirely undamaged is that recently acquired by the Corning Museum of Glass and now illustrated here for the first time in color (on the cover). From its completeness alone it would be a remarkable piece: its interest is, how-

ever, heightened by the maker's signature, M.LICINIVS DICEVS.F(ecit), which it bears around the shoulder and which is unique within this group of glasses.

This cup, of fine, clear, greenish yellow glass, only slightly dulled by age, was found in 1892 at Sopron (formerly Oedenburg, the ancient Scarbantia), a town in Hungary near the Austrian border, in a coffin with a male skeleton, some vessels of Samian *terra sigillata* and other pottery, and another glass cup. It became part of the Gustav Zettl collection and remained in his descendants' hands in Vienna until 1957, when it was brought to London to be sold. It was first published in 1894 (*Archaeologiai Ertesitő* 14 [1894] 392 ff.) and has been discussed in print occasionally since then. It was, therefore, well known when it came into the London sale room, even though few connoisseurs of ancient glass can have handled it in recent years and fewer still can have known that it had remained safe in private hands.

Most of the vessels comprising this group of circus and arena cups are cylindrical. We may instance the famous chariot-race cup from Colchester (Essex) in the British Museum, or the fine gladiator cup from Montagnole (Savoie) in the Metropolitan Museum of Art. The Sopron cup, on the other hand, is ovoid, with a con-

stricted neck above a rounded shoulder. Although this ovoid form is much rarer than the cylindrical, we can list seven other ovoid gladiator cups, and the form also appears in the examples which bear both chariot-races and gladiatorial combats. It does not appear among those bearing chariot-races only, nor among those depicting athletic contests, which are all cylindrical.

Like its fellows this cup was blown into a two-piece mold, the marks of which can be seen on the drawing. The rim was smoothed only by grinding, not rounded



A ROMAN SPORTS CUP *continued*



Immediately above: Cup of yellow glass from Montagnole (Savoie), France, showing four pairs of gladiators fighting. Their names, Tetrates and Prudens, Spiculus and Columbus, Gamus and Merops, Calamus and Hermes, are written on the cup. Photograph courtesy of the Metropolitan Museum of Art.

Above, right: Cup of green glass from Colchester (Essex), England, showing four-horse chariots racing in the circus at Rome. Above the chariot scene is depicted the *spina*, or dividing wall, of the circus, with its columns, shrines, etc., around which the chariots raced. The topmost frieze gives the charioteers' names, Hierax, Olympus, Antilochus, Crescens. Photograph courtesy of the British Museum.

by the application of heat. Below the neck are three horizontal friezes separated by horizontal ribs. The uppermost frieze contains the maker's signature. The middle one shows a file of eight animals. The lowest, and main, frieze bears two pairs of gladiators, each labeled with his name. On the one side is PETRAITES as victor, shield on outstretched left arm, right arm in position to strike (though no dagger is visible), and PRVDES (for Prudens) as vanquished, having thrown away his shield and raising his left hand in supplication. On the left of this scene is a circular object resembling a Catherine-wheel, perhaps meant as the victor's wreath. On the other side of the cup is ORIES (for Oriens) as victor, in more or less the same attitude as Petraites, and CALAMVS as vanquished, supine but still protecting himself with his shield, and with helmet in place on his head. To the left of this scene is an upright palm of victory. The bottom of the cup bears four raised concentric circles with a small depression in the center.

Of the other seven ovoid gladiator cups known, all of which are fragmentary, five seem to have been closely akin in shape and decoration to the Sopron cup, though none can have come from the same mold. One was found in Switzerland; the others are probably from Italy, though this is not certain in all cases. We see, therefore, that the Sopron cup by no means stands alone and without parallel within this series of circus and arena glasses, even if we have not as yet found any piece from the same mold. It belongs, indeed, to a minority group—the ovoid cups—but the whole series,

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both ovoid and cylindrical, is so closely knit and interlocked that in discussing date and place of manufacture we can count it a unity.

For date there is overwhelming external evidence that these cups were made during the first century A.D. Examples have been found in stratified contexts at Colchester (England), Brugg (Switzerland), Xanten (Germany), Couvin (Belgium) and other sites. This dating is strengthened by a consideration of the names of the contestants, particularly those of the gladiators. *Tetraites* (a name which belongs to one of the gladiators on the Montagnole cup as a variant of our *Petraites*) vanquishing a *Prudens* appears on a Pompeian inscription (*Corpus Inscriptionum Latinarum* IV, 538). *Hermes* (found on another cup) and its variant, *Herma*, are also first century names. *Spiculus*, *Columbus* and *Proculus*, all of whose names occur on cylindrical cups, were also well known first-century gladiators: all three occur at Pompeii, and the second and third are mentioned in Suetonius's *Life of Caligula*.

I have called this group a western one, and it is a fact that of the eighty-nine pieces now known to me the vast majority with known provenience come from the Alpine, Gallic and Rhenish provinces and Britain. Four come from Spain, two or three from Italy, and one or two (doubtfully) from the North African provinces. Not one is recorded from anywhere farther east in the Mediterranean. The other remarkable fact about their distribution is the great concentration of fragments—at least fifteen—at Brugg (old Vindonissa) in Switzerland.

Now the process of mold-blowing of glass originated late in the first century B.C. or very shortly after the birth of Christ. All the evidence suggests that its place of origin was Syria, and that it led in turn to the invention there of free-blown glass. From the start this mold-blown glass became very popular, and its Syrian producers of the earlier part of the first century A.D. were sufficiently proud of their products to sign them. The chief maker was Ennion, and it was he—so I believe—who later set up a workshop in north Italy by transferring workers from Syria. In Syria his blowers produced various shapes, but in north Italy they made only cups, to judge from extant examples, and as the Italian distribution of Ennion's cups centers predominantly in the Po

Valley, it is my guess that the workshop was situated somewhere at the head of the Adriatic, perhaps in or near Aquileia.

Only three examples of this eastern group of mold-blown glass of the first century A.D. have, so far as I know, been found in the area covered by the "arena and circus" group—one at Brugg and two at Colchester. And as none of the western group is known from the east, it is clear that the distribution of the two groups hardly overlapped at all.

Note, now, that Ennion's Italian shop made a specialty of cups of a shape which, though furnished with handles, is very similar to that of the handle-less arena and circus cups. As the dating fits, it seems hardly rash to assume that it was that shop which was responsible, directly or indirectly, for the production of the arena and circus glasses. The responsibility was more likely indirect than direct, for the predominantly northern distribution of the cups suggests that the factory or factories that produced them would not have been in Italy itself but at some transalpine center. It might have been at Brugg, but in the absence of any evidence that glass was made there, we may perhaps look farther west to the Rhone Valley and more particularly to Lyons. That that city was a center of the glass industry in Roman times, just as it is today, is shown by the discovery there of the tombstone of one Julius Alexander, described as *opifex artis vitriae*, which can be dated about A.D. 200. The industry probably began there long before, for by the end of the first century it was well established in north Gaul and the Rhineland, and we would expect, therefore, a more southerly factory like Lyons to have been started earlier in that century.

Was it here that M. Licinius Diceus, who signed our cup, had his factory? It could well be. The name—the cognomen was probably Decius, misspelled by the mold-maker—is a good Latin one, and would indicate that by this time people of western birth had set up glass workshops (served no doubt by eastern workmen) and did not leave the control of the trade wholly to immigrant eastern proprietors. One day perhaps we shall ascertain the truth; meanwhile this guess, based on the distribution pattern and the known history of glass-working in Roman times, may not be too wide of the mark.



THE FIRST BRITISH EMPIRE

JULIUS CAESAR came to Britain for reconnaissance, not conquest (Figure 1). The island was so remote, so far north, that even after his reconnaissance little was known of it—and that little was badly thought of. Augustus (Figure 2), shining with military and diplomatic successes, was urged by jingo spirits of his day to invade Britain in force and finish what Caesar had started. He had absorbed Egypt, Spain, the Alps and the Danube approaches, and shown the fist to Parthia. Why not Britain? The reason was unanswerable. Rome made more revenue from the tolls and taxes levied on cross-Channel trade between Roman Gaul and free Britain than she would if she conquered Britain and had to pay the costs of occupation and administration.

Why, then, did Claudius (Figure 3) upset the Augustan dogma and launch his invasion in A.D. 43? Certainly not out of mere megalomania. His motives, indeed, were probably sound. Gaul, only recently added to Rome's territories by Caesar, was an acquisition of enormous value—it was later compared with Augustus' conquest of wealthy Egypt. But Gaul was not yet fully Romanized, and troublesome elements in free Britain could play powerfully on native sentiment in Gaul. If Claudius conquered Britain he would round off the empire in the northwest and stifle British subversion. "Rounding off" was always dear to the Roman heart, and the younger Pliny felt just the same when he made his Italian farmlands into a tidy unit by fresh acquisitions.

So Britain was invaded, conquered and consolidated. Archaeology has shown what the result was. For two centuries there was steady material and economic progress. There were many Roman citizens in Britain in the form of soldiers and administrators. The Latin language spread widely: many people must have come to think in terms of Roman thought, and certainly people "bought

Roman"—or "bought Roman Imperial" at least, as witness the mass of Gaulish pottery in Britain. Yet archaeology has never told us, and probably never can, how deeply this Romanization went. Do all the roads and buildings, and all the contentment with peace and stable markets and good Roman justice, add up to a Romanized Britain in which nationalism was dead? Remember that there is no literature from Roman Britain to tell us what people were really thinking after the great "take-over" operation was complete. This is one of the countless gaps in recorded history.

And so arises the interest of the great break-away—the first British Empire—which lasted from 286 to 296. In its origin this splinter movement owed little, if anything, to British nationalism. Its founder was Carausius, a native of the lowlands which are now Belgium. And its object was to be seen simply in the ambition of Carausius to flaunt his power independently in the face of Diocletian and Maximian (Figure 4), the legitimate emperors of the time. Its success was due partly to Carausius' own ability, partly to the physical security which the Channel gave then, as it has since, to a Britain strongly defended by sea. How much could Carausius count on British backing in planning his splinter movement against Rome?

His movement was one of many that threatened Rome in the third century A.D. Military anarchy had blotted out the tranquil sunshine of the Antonine Age, and the legitimate emperors of Rome—though not all of them merited the title—had been faced one after another by rivals for power in the provinces. The Palmyrene empire of Odenathus and Zenobia, however romantic, was a dangerous reality in the southeast. In the northwest Gaul was again a storm center, and for fourteen years, from 259 to 273, emperors ruled in Gaul quite independently of their counterparts in Rome. One result of such move-

1. Julius Caesar: silver denarius. Caesar received the right of life-time portraiture (the first Roman to do so) immediately before his assassination in 44 B.C. Coins minted at Rome just after his death show his spare, powerful features in what is virtually an imperial context.

2. Augustus (31 B.C.-A.D. 14): silver denarius. The nephew of Julius Caesar profited by his uncle's errors of haste and slowly introduced a conservative imperial system in the guise of a restored republic. Here he is shown unwreathed—the citizen administrator pure and simple.

3. Claudius (A.D. 41-54): copper as. Learned, bookish and awkward, Claudius nevertheless held clear and progressive views on Rome's continuously unfolding destiny, and for an unsoldierly emperor kept a remarkably steady eye on military developments in his great empire.

By C. H. V. SUTHERLAND

ments—and there were many others elsewhere—was the collapse of the imperial economic system. The Roman monetary system of the time reflects the chaos. Gold coinage dwindled sharply. Silver coinage, at first alarmingly inflated by the addition of base alloy, ended up almost as pure copper. With internal trade interrupted by internal strife, prices everywhere soared. Every time they rose the government tried another hopeless dose of money devaluation, and finally the inhabitants of the empire must have stared economic ruin in the face.

Much of this chaos was to be remedied by the firm reforms of Diocletian. But in 286, when Carausius usurped power in Britain, Diocletian had been a mere two years in power. And Carausius, with all a northerner's sense of independence, perhaps drew a false impression of weakness when Diocletian appointed Maximian as a colleague, specifically to help him in the administration of the west. Now, at any rate, was Carausius' opportunity.

All coins are in the Ashmolean Museum and all are reproduced at about 1 1/2 times actual size, unless otherwise stated.



4. Diocletian (A.D. 284-305) and Maximian Herculeus (A.D. 286-305): copper folles. Rebuilding the Roman Empire after the chaos of the mid-third century, Diocletian found it necessary to partition the empire and appoint a colleague in power. He himself retained the government of the east, leaving the west to Herculeus and his helpers.

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5. Carausius (A.D. 286-293): copper antoniniani. The emperor of Britain shows himself in a general's cloak and armor, bareheaded in a rare facing portrait (British Museum) or wearing the radiate crown, sometimes even superimposed on a helmet (*center*).

FIRST BRITISH EMPIRE *continued*

He pursued it with great skill. Unlike some pretenders, he could not rely on claims of aristocratic prestige—his birth was of the humblest. His only qualifications—and excellent ones—were those of a sailor. He had been trained as a pilot in the difficult and dangerous waters along the coast of Holland. Finally he came to command a Roman North Sea fleet based on Boulogne, and was responsible for policing the Channel and the coasts of East Anglia, northern France and the Lowlands. We know what he looked like, for his own coin portraits (Figure 5) illustrate his features in abundance—a burly man, thick-necked, with a small round head, his hair growing low over his forehead and a short-cut, curly beard worn under rather than on his chin. This was the man of whom stories came to Maximian that booty captured from pirates found its way not into the imperial treasury but into Carausius' own pockets.

When Maximian threatened him with punishment, he crossed to Britain, doubtless with much of the Boulogne fleet in his pay. What support could he count on? And what resistance? The early chroniclers say that, instead of making a frontal assault on such obviously strong Roman centers as London or Colchester, he landed in the northwest and, after making a pact with the fierce tribes of the border, marched south, beating the Roman forces near York, and thence to London. All this suggests that the native population accepted him easily. Certainly he consolidated his forces very quickly and began at once to reign, in all externals, as an official colleague of Diocletian and Maximian. At one blow he had enlisted northern support against the existing Roman régime in Britain and obliged the Roman forces there to turn their plans for defence against him upside down.

Seldom had a Roman province been so easily snatched. And with Britain thus gained, Carausius intended its independence, under his own rule, to continue. Of his de-

tailed theory of imperial philosophy we know little. To the Roman historians and court panegyrists he was just another of those vexatious rebels on the fringe of the empire who pricked and worried the central government, sapping its strength yet never bleeding it to death. They grudgingly recognized his ability and bravery, and yet failed entirely to explain how he could maintain his power in Britain undefeated for seven years, until assassination by his own subordinate ended it.

We today know that his policy had, at any rate, three primary objects. First, to secure a working arrangement with the central government of Rome, so that he should be recognized as a full-scale imperial colleague of Diocletian and Maximian. Second, to strengthen Britain's economy. Third, to retain in his administration all those



6. Diocletian and Maximian Herculus: copper antoniniani. Portraits of the legitimate emperors, coined at mints outside their control (ML = London, C = Colchester?), testify to Carausius' insistence that he is their lawful colleague. The three G's in PAX AVGGG indicate three Augusti in power.



7. "Carausius and his Brothers": copper antoninianus. Carausius represents himself as a visible equal with FRATRES SVI, Diocletian and Maximian, on a rare but famous issue of Colchester (?) coins.



8. Allectus (A.D. 293-296): aureus. Carausius was succeeded by Allectus, who, though he continued the structure of Carausius' administration, was in every way a lesser figure.



9. Carausius: copper antoninianus. The extension of Carausius' naval power up to and including Rouen is evidenced by a considerable group of coinage of distinct style, first made familiar by the Rouen hoard.

elements of Roman culture which Britain had been accustomed to for nearly two and a half centuries. All this is known from his abundant and eloquent coinage. It is so abundant and so eloquent that even without any contemporary literary record to guide us, we can see quite clearly what was in his mind.

First, then, his aspiration to be recognized as an emperor, provincial indeed, yet equal in degree with the constitutional emperors of Rome. Maximian, on Diocletian's behalf, mounted a great naval expedition against Carausius. He underestimated his opponent badly, and was heavily defeated. Of Roman historians only Eutropius records the result, namely, that a peace was patched up between Maximian and Carausius. And only Carausius' coins show just how much Carausius gained by that peace. From the beginning of his reign he operated mints, one at London and one either at Camulodunum (Colchester) or Clausentum (near the modern Bitterne close to Southampton)—its signature was the letter C. From both these mints appeared, obviously by order of

Carausius, courtesy coins struck in the name of Diocletian and of Maximian individually (Figure 6). And the climax of this subtle propagandist movement was reached in the coins with the inscription "Carausius and his brothers," showing the portraits of all three rulers posed in a group together, and calling attention to the Peace of the Three Emperors (Figure 7).

Here, then, was the accomplished fact. Diocletian had found it wise to partition the vast burdens of the empire between himself and Maximian. Simultaneously Carausius sought and gained an extension of the principle. Let there be not only emperors of the east and the west, but emperors also of major regions within each main group. The end of Carausius' rule was due, of course, to his murder by Allectus (Figure 8). But if that had not happened, and if Carausius had continued successfully to maintain his naval strength in the face of continental opposition, his independent empire in Britain might have lasted for a long time, and from it might have sprung an orderly and civilized northern state.



10. Carausius: silver denarii. Carausius introduced pure silver on the standard of Nero's denarius, with types such as ROMANO RENOVA and the Virgilian tag EXPECTATE VENI—Britain's tribute to her occupation by him. The mint-mark RSR is of uncertain meaning.

FIRST BRITISH EMPIRE *continued*

Even as it was, he did much in his short reign to restore and strengthen British economy and thus to justify his rule to the inhabitants of Britain. His lifeline, as he clearly saw, lay in a strong link with the continent. He maintained that link, first through his mastery of Boulogne and afterwards, when Maximian's forces had captured Boulogne, through control of Rouen. No literary evidence exists to this effect. But the Rouen coin hoard found in 1846, consisting of over two hundred coins of Carausius, shows a style not otherwise met with, sometimes even accompanied by the mint-mark R, and it is hard to reject the theory that at Rouen—or Rotomagus, to give it its Roman name—he operated a mint to serve his cross-Channel terminal (Figure 9).

Equally remarkable was another aspect of his monetary policy. When he came to power the commonest coin in the monetary system of the empire was a small copper piece washed over with tin and masquerading as silver. In about 294 Diocletian, as part of his empire-wide currency reform, reintroduced a pure silver coinage on the standard of Nero over two hundred years before. It is all the more interesting to find Carausius doing exactly the same thing well in advance of Diocletian (Figure 10)—well in advance since Carausius was murdered in 293 and his silver coinage was by then, if not common, at least very varied. He had, in fact, stolen Diocletian's thunder so far as Britain was concerned; and with this

new silver there appeared not only the standard copper but gold as well (Figure 11). Is it not significant that a ruler who held out in Britain for seven years against Rome was also a man who put a stop to the monetary inflation of the past generation?

Finally there was Carausius' emphasis, made as any properly Roman emperor would make it, on the Roman quality of his administration. This northern seaman-turned-emperor could, of course, draw upon all the traditions of the Roman civil service which he must certainly have taken over when he seized Britain. And his coinage shows that he did so. His imperial title followed precedent. He paid the usual regard to those primary gods and goddesses—Apollo, Mars, Jupiter, Peace, Concord and Good Faith—which were essential parts of any ruler's propaganda. But among much that was orthodox there are to be seen many flashes of originality and sharp interest.

Who could have imagined, for instance, that his triumphant advent to Britain (Figure 12) would afterwards be celebrated in the adaptation of words uttered by Dido to Aeneas: "Come, thou for whom I have waited"—with a picture of Britannia holding out her hand to her new ruler (Figure 10, *below*)? And although the majority of his coin propaganda is borrowed or adapted from the designs of the money already current in Britain when he took power there, we can note



12. Carausius: copper antoninianus. Many of Carausius' coin-types were borrowed or adapted from coinages of the central empire. ADVENTVS AVG—the imperial visitation—looks to his first arrival in Britain and, even more, in London, where (ML) this coin was struck.

significant exceptions. His appeal for loyalty to the twin concepts of Rome and her imperial rulers looked back to the great Augustus himself. His repeated emphasis on the Wolf and Twins, accompanied by the slogan "Rome renewed" (Figure 10, *above*), again looked back down the years to times of crisis, seen as turning points in Rome's historical destiny—just as his own elevation to power was. An allusion to his own watchful guardianship—Tutela—was probably borrowed from a predecessor. Yet he used the tag characteristically, for it appears only on the coins of the Rouen mint, and Rouen, his isolated foothold across the Channel, was in undoubted need of his protection.

Many other coins show how this un-Roman ruler viewed his task of imposing an externally Romanizing tradition on the partly Romanized, though still not highly civilized, province of Britain. His appeal, in short, was to the spirit of Britain, exactly as another coin proclaimed with its inscription "In honor of the Genius of Britain" (Figure 13). He might have done much if his life had been spared—provided always that he kept his naval defences stout and up to date. Here again the coins tell us how important he thought the naval arm to be. There is constant allusion to Neptune; and one unique coin shows what is surely the emperor's flagship, with the words "the imperial peacemaker" (Figure 14). Peacemaker indeed: the navy had carried



11. Carausius: aureus. The issuing of gold coins, together with silver and copper, reflects Carausius' efforts to give Britain's economy the exchange media long regarded as necessary and correct for any imperial government. Constant emphasis on PAX conveys a warning to Diocletian and Maximian: "Live and let live."



13. *Above*: Carausius: copper antoninianus. The spirit of Britain is here represented as a religious and emotionally felt reality, with her Genius seen at sacrifice. The inscription GENIO BRITANNI was soon to contrast with Diocletian's ubiquitous GENIO POPVLI ROMANI coinage.

14. *Below*: Carausius: copper antoninianus. A coin found at Kenchester in Herefordshire shows Carausius' flagship, elaborate in detail and adorned with an imperial eagle, and perhaps named PACATRIX AVG—the bringer of peace through naval supremacy in the North Sea and Channel.



15. Constantius I (Caesar, A.D. 293-305; Augustus, 305-306): gold medallion. About actual size. This medallion, found in the Arras hoard of 1922, and now a national monument of France, records the recovery of Britain from Allectus by Constantius, Maximian's junior colleague in the west. Constantius is shown riding into London (which kneels in welcome) after sailing up the Thames in a warship. The medallion was struck at Trier, the center of Constantius' administration.

FIRST BRITISH EMPIRE *continued*

Carausius to power, the navy had beaten off Maximian's attempts to undo his brilliant coup, and the navy—but for the treacherous sword of his lieutenant Allectus—could well have maintained him in power long enough to turn the province of Britain into an island which no continental force would lightly or wantonly attack.

The actual outcome was very different. Allectus was defeated by Roman forces in 296; and Constantius Chlorus, after riding in triumph into London, could picture his conquest suitably in the splendid gold medallion found at Arras, styling himself "the restorer of eternal light" (Figure 15). If Carausius had been alive he would have denied that it had ever failed in his own seven years of authority. He might even have claimed that he had founded a new order in Britain. Indeed, it is quite possible that he did leave some definite kind of

brave tradition behind him. Exactly two generations later there was again trouble and unrest in Britain, caused this time by a fresh anti-Roman movement in Gaul. Southeast Britain—and only southeast Britain—has turned up a handful of coins, some in Kent, some in Suffolk, made at that time in the name of a certain Carausius (Figure 16). Could this have been a grandson of the great naval usurper of the third century? And did he perhaps try to follow in the same naval tradition? At all events some of the coins in question were found at the Roman port of Richborough, and it is possible that, with Gaul unsettled and in arms against the central government of Rome, a second Carausius may have been encouraged to conceive some new plan, however puny and ephemeral, for partial British independence, relying on a name which Britain by now held in honor.

16. "Carausius II" (ca. A.D. 350-360). Copper follis. A small group of copper coins shows the name Carausius in variously ligated forms, together with a reverse type which must fall after A.D. 348. The historicity of a second Carausius is debated, but the fact remains that the name was introduced onto a British-found coinage over half a century after the famous Carausius was dead.



IOLKOS



Harbor of Volo. The arrow shows the site of Iolkos. Mt. Pelion is seen beyond it.

Whence Sailed The Argonauts

By DEMETRIOS R. THEOCHARIS

Pelias dwelt in wide Iolkos and was rich in flocks.

ODYSSEY XI.256

MANY YEARS BEFORE THE TROJAN WAR Jason and his doughty comrades set forth in the *Argo* on the earliest known Greek naval expedition, familiar in tradition as "The Quest for the Golden Fleece." Some vanished epic earlier even than the *Iliad* and the *Odyssey* must have told of the Argonauts' adventures, for Homer remarks that the *Argo* is known to all.

The rendezvous of the famous heroes who joined Jason—Herakles, Castor and Pollux, Peleus the father of Achilles, and the rest—was Iolkos, the capital of Thessaly. Iolkos lay well to the north of the Mycenaean Greek capitals—Mycenae, Tiryns and Pylos—familiar to us from Homer and from the excavations of their royal palaces and tombs. It was also a great center in its own right, the focus of many fascinating early legends.

At the time of the Argonautic expedition the king of Iolkos was Jason's uncle, Pelias, who had wickedly deposed his brother Aeson. Jason's mother, fearing that

her son might also be harmed, took him away to Mt. Pelion, where he lived in the cave of the centaur Cheiron, an unusually wise and gifted creature. In the meantime Pelias had been warned by an oracle to beware of a one-sandaled man, and so when Jason, grown to manhood, appeared in Iolkos wearing only one sandal (having lost the other), Pelias was terrified. In order to get rid of Jason, Pelias persuaded him to undertake the hazardous expedition to bring back the Golden Fleece. He felt reasonably certain that Jason would not survive, but with the help of Medea, the bewitching witch, Jason brought back the Fleece. In the sequel to the story Medea killed Pelias by pretending to "cook" him back to youth, and fled with Jason to Corinth, where another episode in her melodramatic career is related in the well known play by Euripides which bears her name.

Iolkos, center of so many traditions, whose fame perhaps preceded that of Mycenae itself, has long seemed a spot likely to reward the modern excavator with a rich harvest of objects and historical information. Two earlier but very brief excavations (in 1901 and 1921) succeeded only in raising more problems than they solved—as is so often the case! But one of the excavators, Professor Tsountas, was able to locate the site of the city definitely at the foot of Mt. Pelion and near the head of the deep Gulf of Pagasae.

The hill which formed the nucleus of the Mycenaean city lies within the limits of the modern town of Volo,

• Born in 1919 on the Greek island of Skyros, Demetrios Theocharis studied at the University of Athens, and in 1945 began research in Greek prehistory. Since 1950 he has been in the Greek Archaeological Service. He has participated in excavations in Attica and at Mycenae and Pylos, and has conducted his own campaigns at various sites in Attica as well as in Thessaly. His recent interest centers on problems concerning Thessaly in the Neolithic period and the Bronze Age.



View of the mound of Iolkos, seen from the southwest. *Below:* Large matt-painted vase, Middle Helladic. Photographs by S. Weinberg.

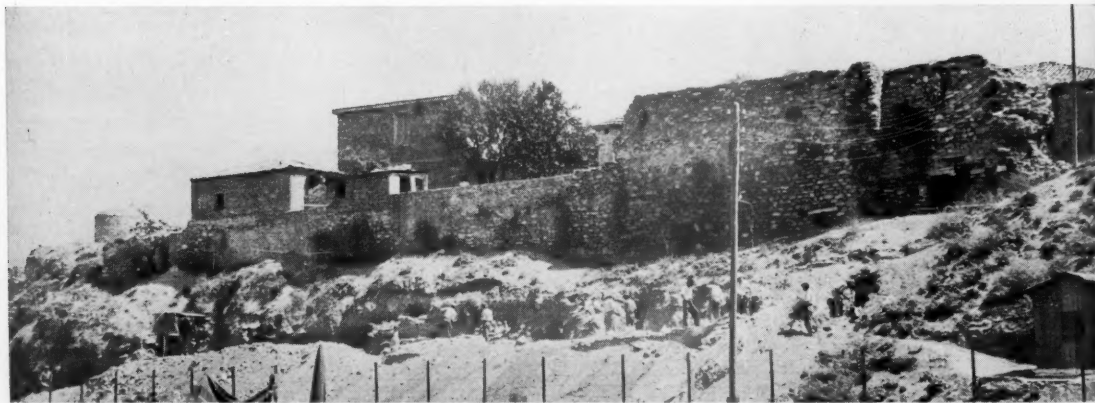
IOLKOS *continued*

the most important port and largest urban center in this part of Greece. Although only some thirty-odd feet high, it measures a quarter of a mile long and a fifth of a mile wide—an area of about twenty-five acres. It was somewhat protected on the west and north by marshy ground about a river—perhaps the Anauros which Jason crossed when he came from Pelion, and where he was said to have lost his sandal. A fortress on this hill could easily dominate both the harbor and the narrow coastal strip which forms an entrance into the fertile fields of central Thessaly.

The desirability of fully excavating Mycenaean Iolkos has lately become urgent—if it is ever to be done—for following the recent disastrous earthquakes at Volo, a settlement now being built is threatening to engulf the site. At my request, therefore, the Greek Archaeological



Iolkos: general view of the main section of the excavations. Above is seen the mediaeval fortress wall and some modern houses.





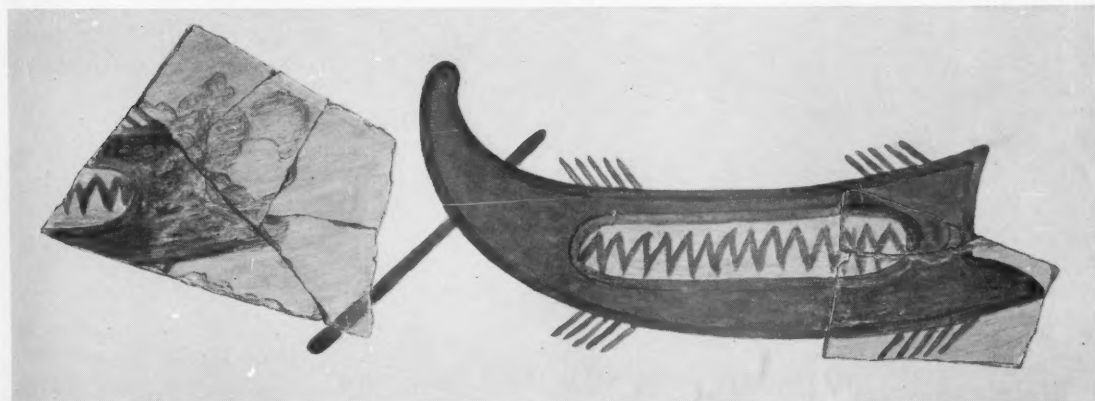
Left: Vase of Early Helladic period. Below: Cup of black polished ware, Middle Helladic. Photographs by S. Weinberg.



Successive foundation walls of two palaces, both dating from the Mycenaean (Late Helladic III) period, which were found at Iolkos.

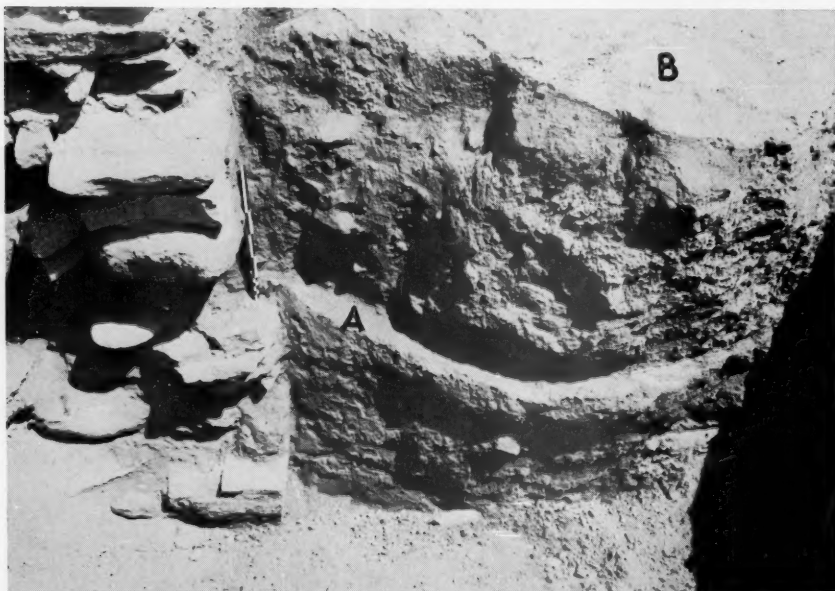
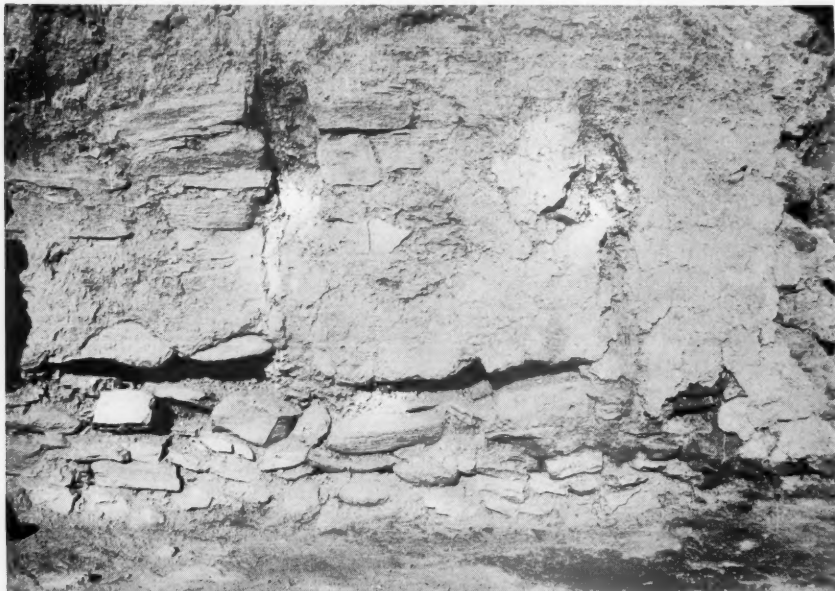


Polychrome matt-painted potsherds, Middle Helladic. This reconstruction shows that two ships were represented. The background is buff-colored; the ships are purplish, with black outlines and interior details. Reconstructed drawing by the author.



IOLKOS *continued*

Above: Part of palace wall. Vertical and horizontal depressions show where wooden beams were set for reinforcement. *Below:* Successive stucco floors (A and B) of the Mycenaean palace.





Above: Fragments of Mycenaean painted pottery. Below, left: Mycenaean kylix, or drinking cup. Below, right: Painted toilet box (pyxis) of the Late Helladic I-II period. Drawing by the author.

Society granted permission for a trial excavation, and this was carried out in July and August of 1956. The purpose was to sample the stratigraphy and to determine whether or not important buildings, such as a palace, might be located there.

The stratigraphical results were distinctly encouraging. Undisturbed layers of accumulated debris more than twenty feet deep represent the period of main interest, that is, the Bronze Age, from about 2500 to about 1200 B.C. Below this level water was encountered and it was impossible to dig farther; no Neolithic remains were found. Above the Bronze Age fill lay an also undisturbed "Protogeometric" layer (Early Iron Age, ca. 1200-1000 B.C.). Above this the strata belonging to Classical Greek and later periods had been badly disturbed by the deep foundations of mediaeval constructions, but in these periods Iolkos' importance had passed to nearby Pagasae.

The Early and Middle Helladic periods (that is, the Greek Early and Middle Bronze Ages—to about 1600 B.C.) produced fragments of buildings and pottery. These are of considerable interest to the specialist but they will be passed over lightly here. An interesting find was a crucible for melting copper; this and other evidence show that copper was worked there at least as early as 2200 B.C.

The change from Middle Helladic to Late Helladic (or the Mycenaean period, as it is commonly known) was here, as elsewhere, gradual and seems merely to have been marked by a rather rapid upswing in civilization due largely to increasing contact with the Minoan civilization of Crete. Contact was maintained, of course, by way of ships, and it is interesting therefore that some fragments of a pot, to be dated in this transitional period between Middle and Late Helladic, are decorated



Fragments of Protogeometric pottery from Iolkos.

IOLKOS *continued*

with a series of many-oared boats—a significant promise of Iolkos' developing maritime enterprise which eventually led to the launching of the good ship *Argo*.

Our first short campaign has already produced a more abundant and continuous series of Mycenaean (Late Helladic) pottery than any other site in Thessaly. Of importance is the discovery of some Late Helladic I and more Late Helladic II pottery—some imported, some made at Iolkos—which is rare at other sites. But the main Mycenaean period (Late Helladic III), ca. 1400-1200 B.C., is the most abundantly represented. Hundreds of the typical shallow, high-stemmed cups called *kylikes*—a kind of forerunner of the champagne glass—were discovered. Some of the decorated ones were imported from the main Mycenaean centers in the Peloponnese, but some were also made locally, and the decorations on these find echoes in the vases of the succeeding Protogeometric period, indicating that, as has recently also been noted elsewhere, there is considerable continuity between the Bronze and the Iron ages.

But the most significant discovery of this first campaign is the remains of a large and important building lying at the western end of the northern part of the hill. The walls are preserved to a height of over three feet and have a thickness of nearly four feet; they were strengthened, according to the regular practice at that time, by a framework of horizontal, vertical and oblique wooden beams. Two of the rooms so far excavated, with widths of about twenty and twenty-five feet, had floors surfaced with fine white stucco; another room had a

length of over thirty-six feet. The size and character of these rooms and the finds made in them—including hundreds of small *kylikes*—certainly suggest that it is the palace which has been found, and it is worth noting that the archaeologist Kourouniotes once excavated a rich tholos tomb of royal type near this hill. Unfortunately the overhanging towers of an adjacent wall of mediaeval date limit further exploration of the building until they can be removed. The necessary expropriation and demolition are still to be financed.

This palace, if such it be, belongs to the latter part of the Mycenaean period, and was destroyed by a violent fire about 1200 B.C. This might be the palace of Eumelos, son of Admetos, whose wife Alcestis, in the story familiar to us from Euripides' play, offered her own life to save his. Some two feet under the floor level was found a stuccoed floor, evidently belonging to an earlier palace (probably Late Helladic IIIA), perhaps that of Pélías, while on another stucco floor lying farther to the north were found fragments of Minyan pottery which might indicate the beginning of a palace of a still earlier phase, probably early Late Helladic II (fifteenth century B.C.). If our expectations are realized, we may at last be able to trace the architectural development of a Mycenaean palace through several centuries in a way which has not been possible for the palaces built on rocky hills in the Peloponnese.

We hope, therefore, that if these new excavations arouse sufficient interest to receive adequate support, they will prove that Iolkos was not a mere Mycenaean colony, a creation of the late Mycenaean Age, but an independent center with a long tradition of prosperous existence which contributed as much to the development of the Mycenaean-Greek civilization as the better known centers in southern Greece.

The application of geological dating to archaeology is a special interest of the author, who is Associate Professor of Geology at the University of Minnesota. He was born in 1917, attended Harvard (Ph.D. 1943), and during the war was a major in the United States Air Force. Professor Wright, who has done field work in Arizona, New Mexico, Alaska and Greenland, has also been on expeditions to the Near East. In 1954-55 he was a member of the Oriental Institute expedition at Jarmo in Iraqi Kurdistan.

GEOLOGIC DATING IN PREHISTORY

BY HERBERT E. WRIGHT, JR.

IN 1947 THE NUCLEAR PHYSICIST WILLARD F. LIBBY introduced the radiocarbon method of age determination, effective for dating organic materials back to about 17,000 years ago. Since then the method has been perfected so that there is reasonable accuracy for the last 40,000 years, with the possibility of further extension to 75,000 years. This covers the range of man's development well back into the Old Stone Age. There was originally great hope that this method would provide an absolute time scale which would be precise enough to calculate directions and rates of migration of cultures, durations of habitation at individual archaeological sites, and other useful information. The radiocarbon method, however, has not solved all problems. Some of the dates determined are clearly out of line and must be explained by alteration, contamination or incorrect identification of the sample, or by unseen difficulties in the laboratory technique. Furthermore, many sites do not yield organic material suitable for Carbon 14 analysis. This shortcoming applies particularly to Palaeolithic sites, in which wood and other organic materials are poorly preserved. Here recourse must be made to another method of dating—the geologic method.

The geologic method of study of archaeological sites has two general objectives—first, to provide information about the physical and climatic environment at the time of habitation, and second, to fit the site into the geologic chronology of the region. Geologic dating generally depends on climatic change—the central environmental fact in the evolution of prehistoric man. Long-term fluctuations in temperature and precipitation affect the plant and animal life of a region as well as the activity of streams, springs, lakes, glaciers and wind. The geologic features most useful in dating and in reconstructing the physical environment differ from place to place. In

general, there are four major physiographic regions in which climatic changes are best recorded. These are: glaciated areas, periglacial areas (bordering the glaciated areas), seacoasts and arid regions.

Glaciated Areas

In the higher temperate latitudes and in the mountains of lower latitudes the alternate expansion and retreat of glaciers were a direct result of basic changes in atmospheric temperature and perhaps precipitation. These glacial fluctuations provide the basis for the subdivision of the Ice Age (Pleistocene) into four major stages and for the recognition of several fluctuations within the last glaciation. The most recent of these minor fluctuations has been dated by the Carbon 14 method as ca. 10,000 B.P.

Although early man obviously could not have lived on the ice, he may have lived at sites later overrun by glacier advance, and he certainly followed game animals onto glaciated terrain soon after it was bared by the retreat of the ice. Glaciated terrain is usually marked by lakes and bogs, whose postglacial sediments may contain pollen grains blown from the vegetation of the surrounding terrain. Careful study of the proportion of different pollen types in the succession of lake sediments shows the sequence of vegetational changes in the area since glaciation. In northern Europe this pollen record shows that immediately after the ice retreated the vegetation was tundra, and that forest then appeared as the climate improved, until about halfway through the postglacial period a climate milder than the present developed. After this the climate became cooler and damper, with minor fluctuation. Many early prehistoric sites in Europe may be related to specific phases of this postglacial vegetational succession.

Another feature of glaciated regions that is useful in



1. *Above:* Glacial deposit in northern Minnesota overlain by varved lake deposits, and the latter, in turn, by peat. The summer part of each varve is light and silty; the winter layer is dark and clayey. A full climatic record—glacial deposition, the years of ice retreat and the postglacial period—might be recorded in this deposit.

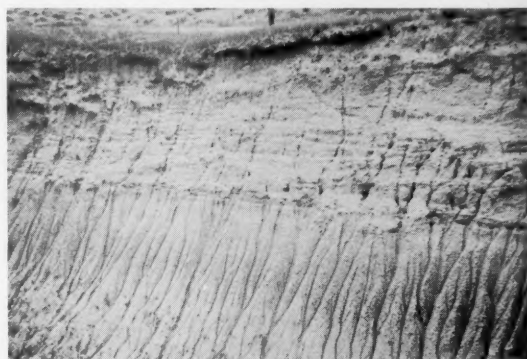
2. *Right, above:* Earth flow and its associated spring in the high mountains of Kurdistan. Such soil flow (solifluction) is common today in arctic regions, and is aided by summer thawing of saturated frozen ground. In the Pleistocene periglacial region of central Europe similar masses of rubble preserved beneath loess or stream deposits record intervals of frigid climate in regions now temperate. Some of the deposits contain artifacts.

3. *Right, below:* Interglacial soil buried by wind-blown sand in the periglacial region of Kansas. Much better developed than the modern soil, it records a long period of mild climate between two glacial phases of strong wind action.

GEOLOGIC DATING CONTINUED

dating is a special type of glacial lake deposit composed of varves—thin layers of fine lake sediment which represent alternate summer and winter deposition. Each summer layer, deposited when meltwater streams supplied much sediment to the lake, has a thickness corresponding to the relative warmth or length of that season. Varves from deposits of adjacent lakes can be matched (like tree rings) by a careful comparison of the thicknesses of the summer layers. Overlapping sections of matched varves in central Sweden, for example, record the gradual extension of lakes over ground bared by the retreat of the Scandinavian ice sheet; their measurement has yielded an absolute chronology for the last 10,000 years that is as precise as the radiocarbon dates for this period (Figure 1).

A third feature of glaciated regions is the crustal uplift that followed removal of the ice load. In northern Europe the uplift resulted in the emergence and outward tilting of shorelines along the coast of the Atlantic Ocean and the Baltic Sea. The rate of uplift has been



measured, and the relation of prehistoric sites to certain shorelines provides a method of dating.

Periglacial Areas

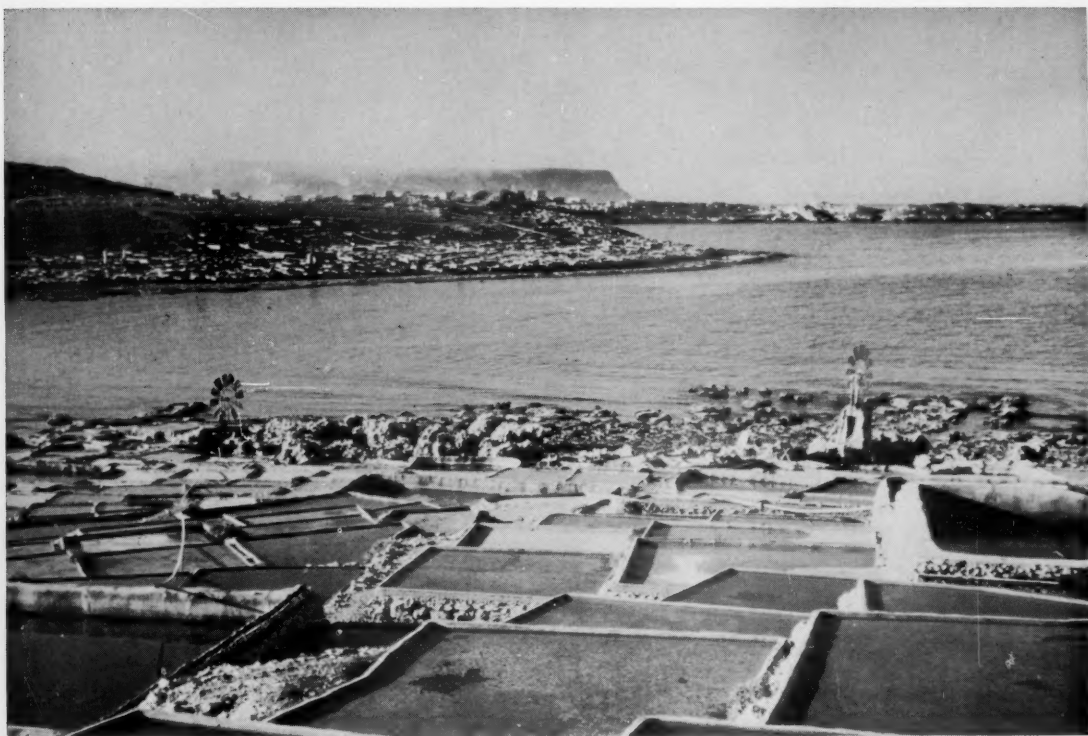
In the periglacial zone bordering the ice sheets the climate and land-forms were affected not only by the basic climatic change but by the proximity of the ice itself and the cold air mass over it. The climate was characterized by low temperatures and frequent winds, resulting in disturbance of the soil by frost action (Figure 2) and in the deposition of sand dunes and wind-blown silt, or loess (Figure 3). Streams draining from the ice edge spread gravel and sand along the valleys in and beyond the periglacial zone. Analyses of deposits in the periglacial zone of Europe show that there was a broad band of tundra bordered on the south by grasslands or forests. The Mediterranean area probably had more rain in the summer than it does at present.

Prehistoric sites may be related to one or more of these climatic indicators. One site might be included in



4. Glacial gravel resting on dipping bedrock on the Shoshone River near Cody, Wyoming, east of Yellowstone Park. Nearby is an Early Man site apparently inhabited when the river still flowed on or close to the terrace surface. The main terrace may be traced upstream to a glacial moraine in the mountains, and the site can thus be dated with respect to the last glacial stage.

5. Marine terraces on the coast of Lebanon. Salt-evaporating pans in the foreground are on a low terrace; the two promontories beyond show higher terraces. The terraces are cut on bedrock, but locally bear a veneer of marine sand or gravel containing some artifacts. Sea caves found at the inner edge of some terraces often contain signs of early habitation.



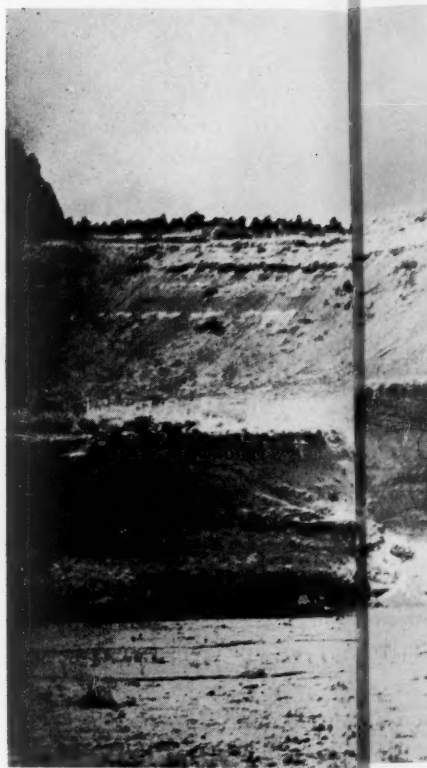
GEOLOGIC DATING CONTINUED

some stream deposits which can be followed far upstream to glacial moraines (Figure 4). Another might be located in a soil buried between two beds of loess. If the loesses can be traced to the glaciated region and related to two different glacial moraines or glacial stream deposits, then the soil (and the archaeological site) might be correlated with an interglacial episode between the two ice advances. Many of the important Palaeolithic sites of western Europe are dated in this manner.

Seacoasts

Along the seacoasts beyond the glaciated regions, as in the Mediterranean, wave-cut cliffs and terraces record interglacial times when sea level was higher because of melting of the great ice sheets. In the glacial phases, water was removed from the oceans to form the ice-sheets; sea level fell, exposing broad beaches to wind erosion and the accumulation of sand dunes (Figures 5-7). Marine terraces in various places may be correlated with one another on the basis of elevation, except where the crust is unstable. The coasts of glaciated regions are complicated by the fact that the land was depressed under the great load of glacier ice, and is still slowly rising.

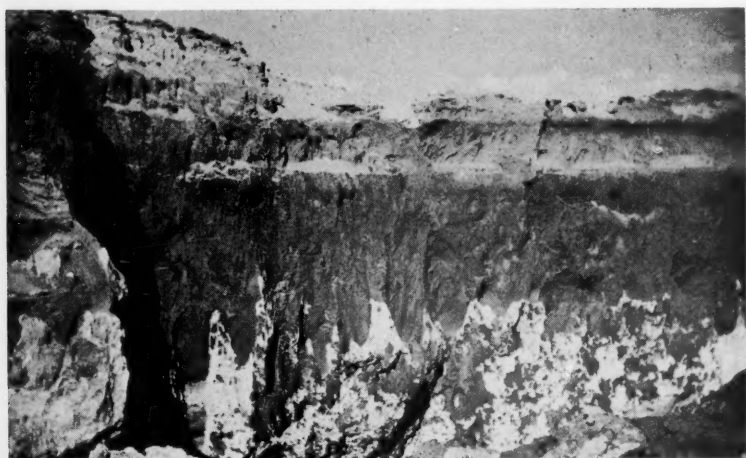
6. A group of archaeologists (and the ubiquitous little boys of the Near East) collecting flint tools from a buried soil in sand dunes near Beirut. The main mass of the coastal dunes was formed during the last glacial stage when the sea level was lower. A period of stability allowed a dark red soil to develop on the dunes, and here early man chipped flints. Later, the wind buried the old dunes, and more recently the dune cover was partly stripped away.





8. Alluvial terraces in Arizona have been related to fluctuations in climate. Here an alluvial filling of silt and fine sand in a valley was marked by formation of peat (black) in its upper levels, suggesting a relatively humid climate. Then a period of deep cutting followed (see men at lower right for scale), correlated with a change to relatively dry climate when the slopes were less well protected by vegetation. Still later, minor filling by white sand is recorded by the terrace on the left. Although the cutting here occurred within historic time, much older intervals of cutting and filling have been identified in the Southwest and correlated with early pottery cultures of this area.

7. Cross-section through the soil visible in Figure 6. The dark red soil protrudes downward into calcareous white sand. The sand has been cemented by lime leached from the soil to make a resistant rock which is now quarried for building stone in Beirut. The main soil is overlain by more sand in which an incipient soil was formed, and this in turn was buried. Artifacts discovered in the buried soils might be correlated with climatic fluctuations.





9. Terraces of the Chemchemal Valley, northeastern Iraq. The broad plain in the middle ground is underlain by alluvial silt that contains Palaeolithic artifacts at its base. The silt fill was probably deposited during the last pluvial stage, recorded by expanded glaciers in the mountains not far away. The plain was then deeply cut and partly filled up to form the inner terrace visible in the foreground. This second fill contains Assyrian potsherds. Finally, the inner terrace was cut by gullies that look like arroyos in the American Southwest.

GEOLOGIC DATING CONTINUED

The geologic date of a coastal prehistoric site may be determined thus by relating it to the chronology of sea-level changes by means of marine terraces, sand dunes or other deposits. This chronology is then connected with the glacial chronology via the periglacial region—for example, a terrace in the Mediterranean may be correlated with one in periglacial France by means of similar height above the sea and perhaps similar fossils. The French marine terrace might be associated with a periglacial stream or loess deposit that in turn has been traced to the standard glacial chronology. In this way the glacial chronology can be extended far afield to seacoasts all over the world, and may be carried inland via associated river features.

Arid Regions

In arid regions, fluctuations in rainfall and temperature are recorded by variations in the size and salinity of lakes, activity of streams and springs, movement of sand dunes, formation of soil and other geologic processes (Figures 8, 9). A detailed record of climatic change during a relatively short time has come from the study of tree rings in timbers recovered from prehistoric sites, and as in the case of glacial varves provides a means of

absolute dating that rivals the radiocarbon method for short periods. The pluvial (rainy) and interpluvial climatic phases of arid regions are believed to reflect the glacial and interglacial climates of temperate latitudes. Since the climatic chronology of arid regions can rarely be directly connected either to the glacial sequence or to marine terraces, the sequence is usually "floating" within the Pleistocene. A notable exception occurs in Utah, where deposits of glacial streams from the Wasatch Mountains merge into the sediments of Lake Bonneville, the much expanded predecessor of Great Salt Lake. Even without such a connection, however, there is no reason why a well founded and detailed climatic chronology, such as that established in South and East Africa, should not be as reliable a base as that in glaciated regions. The latter simply has priority as a result of earlier and more detailed studies, and climatic fluctuations within the last glaciation are more precisely recorded by glacial moraines and by fossils.

Interior desert and semi-desert regions are richer in archaeological sites than either the periglacial or coastal environments, and therefore palaeoclimatic studies in the interior generally hold greater interest for archaeologists. An individual site must first be related directly to a

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physiographic feature of climatic significance, and this feature must in turn be fitted into a sequence of climatic fluctuations which is worked out for the entire area. Final correlation with the marine or glacial chronology depends on still wider studies.

The Geological Approach

A geologist attached to an archaeological expedition tends to wander far from the excavation site in search of climatic indicators—to mountains for glacial features or old hill-slope deposits, to streams for terraces or for natural exposures of buried soils and other preserved deposits, to lake basins for old shorelines, to coasts for marine terraces. His eye is directed not only to the land-forms themselves but to the deposits of soil beneath the surface. A shovel is therefore as useful a tool as a topographic map or air photograph. Each feature must be considered in the context of both the modern and the Pleistocene climate. Pleistocene deposits are effectively preserved by burial, but they are also effectively hidden from sight. If they remain unburied they are often destroyed by erosion or modified by weathering.

Soils present an interesting special problem. The soil characteristics reflect the climate—red soils are formed in the humid tropics and subtropics, podzolic soils in areas of temperate forest, and so forth. But it takes a long time for a thick soil to develop or to be modified by climatic change. Many of the soils as now distributed may actually be relics of Pleistocene climates, or a composite product of several different climates.

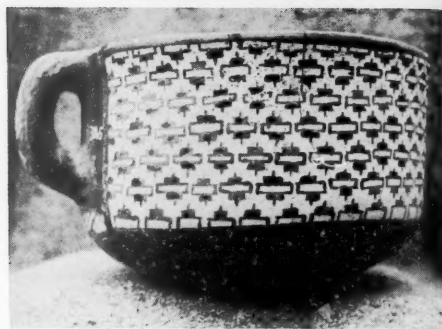
Fossils must be found *in situ* if they are to be of significance. Fossils are rare on the surface because of weathering, and they are not reliable, for the forms could have lived at any time since the feature was formed. The same goes for surface collections of artifacts. If, however, the fossil or artifact is found *in situ* in the sediment of a stream terrace which was laid down during a limited time range, then the relations are much more precise. It must only be certain that the object was not transported to the site from elsewhere, in which case there may be signs of wear.

Sometimes the geologist may find a record of climatic fluctuations directly within the site itself. This is particularly the case with caves and rock shelters, which often have layers of breccia (lime-cemented rubble) or of clay weathered *in situ* from limestone rubble during times of relatively moist conditions. In fact, in some of the larger, long-occupied caves of Italy an extended se-

quence of climatic changes has been inferred from the cave deposits alone. The task is then to connect this sequence with physiographic features outside the cave, so that the sequence can be carried farther afield and tied to an established chronology. Fortunately this is often possible—the floors of some Italian caves have marine sediments and the occupancy of the caves clearly post-dates the withdrawal of the sea. The rock shelter of Ksar 'Akil near Beirut has stream sediments mixed with artifacts in the lower part of the filling, and these sediments may be traced downstream to datable coastal features.

In this connection mention might be made of climatic chronology based on another feature of excavation—the yield of fossils. One of the most famous examples is the Palaeolithic caves of Mount Carmel in Palestine, where the alternation in frequency of gazelle and red deer in different cultural layers was interpreted as reflecting changes from grassland to woodland, and thus from drier to more humid climate. The human factor in selecting game here enters the picture, however, and the climatic interpretation of these fossils unfortunately cannot be confirmed by other features. More significant interpretations have been made by consideration of the whole fauna, including small mammals not involved in human diet (e.g., rodents), rather than just two species.

Geologic dating is a tenuous procedure, too often based on inferences, unproved hypotheses and doubtful correlations. On the other hand, some sites have clear relations to datable geologic features. The general aim is to connect these features with the standard glacial chronology directly or by a series of steps from one province to another. For example, a prehistoric site in the Egyptian desert might be correlated via the Nile River with the Mediterranean coastal features, thence around the coast to northwestern France, and finally inland to the glaciated region of northern Europe or the Alps by river terraces and loesses. Once the correlation with the glacial chronology is established, we have a greater possibility of applying the absolute time scale, because the glacial chronology is becoming more and more firmly refined by radiocarbon dating. The method of geologic dating remains an important means of determining—independently of archaeological reasoning—the age of prehistoric sites, especially for the Palaeolithic time range. The time factor is critical in any hypothesis involving migration of cultures over long distances, as from the Near East to Europe (or the reverse), and must be worked out in advance.



Examples of Chilean Diaguite ware.

IN THE NORTHERN PART of Chile, in the provinces of Atacama and Coquimbo, there lived in prehistoric times an interesting Andean people who long before their conquest by the Incas decorated their pottery with geometric designs. These Indians were farmers who also hunted and fished. They inhabited the fertile transverse valleys of these provinces as well as the long coastal strip. Their culture has been called "Chilean Diaguite"—possibly without good reason, since it was considerably different from that of the true Diaguite of Argentina.

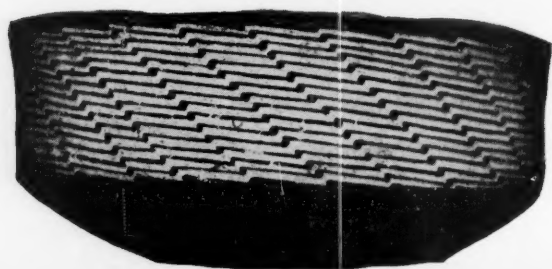
These people had probably lived in this area since before A.D. 1000. No exact chronology has yet been evolved, and the chronologies of Max Uhle and Latham have now lost their value as a result of more recent investigations, especially the Carbon 14 process; this technique has already made possible a new classification of some Andean cultures and will probably change earlier concepts regarding them.

In their oldest cemeteries we find these people already using pottery decorated in three colors. The ceramic ware consists of deep, semi-globular bowls; the quite primitive designs are generally found in the interior of

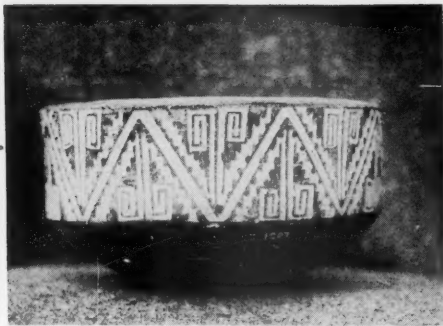
the vessel. We have termed this earliest known pottery "Archaic." Later the ware evolved further, and new elements appeared in the decoration, elements that we ascribe to the "Chinchas," who also influenced the Atacama peoples to the north; this new ceramic phase we call "Transitional." The design elements of this period were the precursors of the beautiful and harmonious decoration which appears later, in the "Classic" stage, and makes this pottery outstanding among the ceramics of South America.

The new elements which appeared in the Transitional period were at first very rudely drawn, but slowly they were perfected and made more precise, until they achieved technical refinement and true classicism.

Later on, some fifty to seventy years before the arrival of the Spaniards, these Indians were subjugated by the Incas, and their pottery exposed to Peruvian influence. But for present purposes we shall ignore this stage of development and confine ourselves to the elements that appear in the preceding Classic period. Almost all the examples shown are from the collections assembled in the Archaeological Museum of La Serena.



EARLY INDIAN ART



THE DECORATION of the Chilean Diaguite is based on a few fundamental motifs, such as triangles, hooks, meanders, steps, etc. Placed in rows and arranged in rectangles on a white background, these motifs are composed into designs adapted to the shape of the vessel. White, black and red are the colors used. Red is generally the background color of the vessel itself, inside and out. The area to be decorated was painted white and bordered by a thick black line; on this white ground the design was painted in black and red. In the latest period the inside of the vessel was also frequently whitened.

In the decoration of these vessels there is generally twice or three times as much black as red. A good example is the bowl shown at lower left, which bears a pattern of parallel stepped horizontal lines. The first line is red; the second, third and fourth are black; the fifth is again red, and thus it continues, the colors alternating in this way in order to avoid monotony. In the same vessel we see that the horizontal lines are broken by steps at regular intervals, and that in each successive line the steps project a little farther than in the one before, thus producing a diagonal ladder effect, an impres-

sion consciously sought by the artist. The same diagonal effect is produced by other designs in which the rows are carefully placed, not one exactly below another but each succeeding row a little farther forward or back.

It seems likely that this art developed quite rapidly, owing especially to the comfortable life enjoyed by the people who produced it. The tribes dwelling along the coast lived mainly on seafood—to which they may have owed their excellent teeth—and the climate allowed them to fish and to gather shellfish throughout the year. They also seem to have carried on trade with the interior. The people of the valleys cultivated corn and other food plants and they also owned a good many llamas. One of the Spanish historians recorded the fact that each Indian had thirty to fifty of these animals; after the conquest by the meat-eating Spaniards this number was rapidly reduced, so that in two or three years each native had only a few animals.

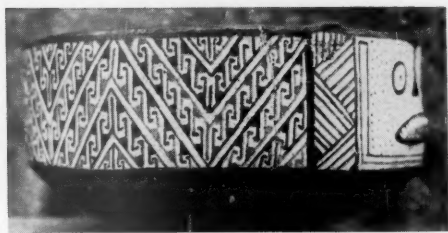
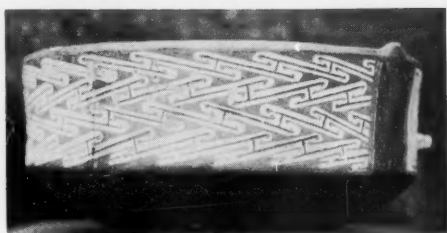
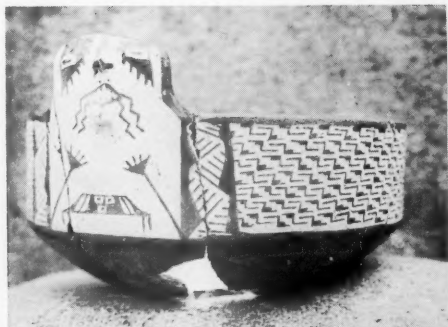
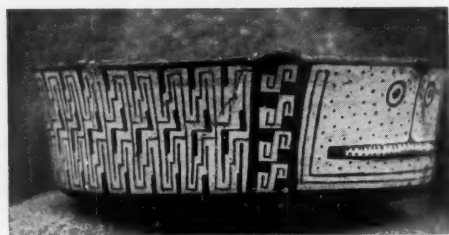
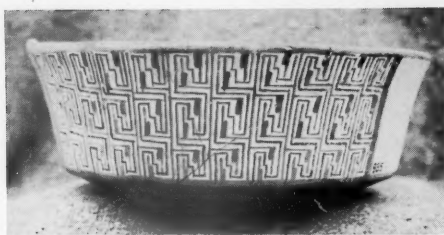
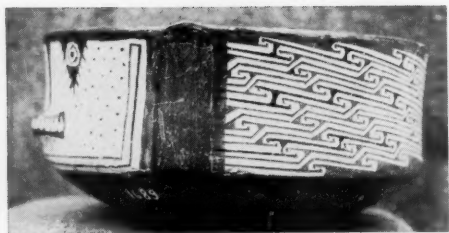
The fact that the people had little difficulty in securing their daily food must have had great influence on the development of their art. In the Classic epoch new forms and even a new style appeared, an example of



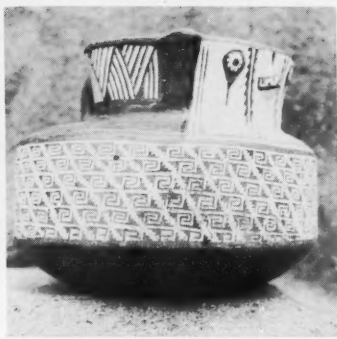
ART OF NORTHERN CHILE

By FRANCISCO L. CORNELI

Director of the Archaeological Museum of La Serena, Chile



which is shown at the lower right on page 27. In this period appear the anthropomorphic bowls which have a face in front, and on both sides of the face various designs executed with great care. Some of these vases are illustrated above. The "duck jars," made in the form of swimming ducks, also belong to this period. Around the human head which takes the place of the duck's head (see example at bottom left) there are always two or three design elements chosen and executed with great care. These vases are rare—choice pieces which may have belonged to officials or priests. The so-called urns are rather rare, and it seems that they were not used



EARLY INDIAN ART *continued*



for burial purposes but rather as containers for *chicha* (the native beer) and employed at fiestas and funerals; afterwards they were generally intentionally destroyed and placed in the graves.

Decorated jugs, such as those at the top of this page, are rare. There is also another kind of vessel, generally zoomorphic, which we consider to be of totemic significance (see above, right).

All this pottery seems to have been intended for ceremonial purposes, that is, to have been used only on certain solemn occasions or at funerals. In daily life the people used ordinary pottery, grayish black and unpol-

ished, which is generally found stained by contact with fire. This pottery is often decorated with plastic additions such as those shown on the vessel above at the left. Generally they are applied to the necks of small pitchers which have a handle at the back, while the front part, the container itself, is considerably extended, giving the pitcher a characteristic form something like a shoe. The decoration often includes all the front part of the vessel. The applied relief elements are mostly anthropomorphic in character; more rarely zoomorphic decoration is used.

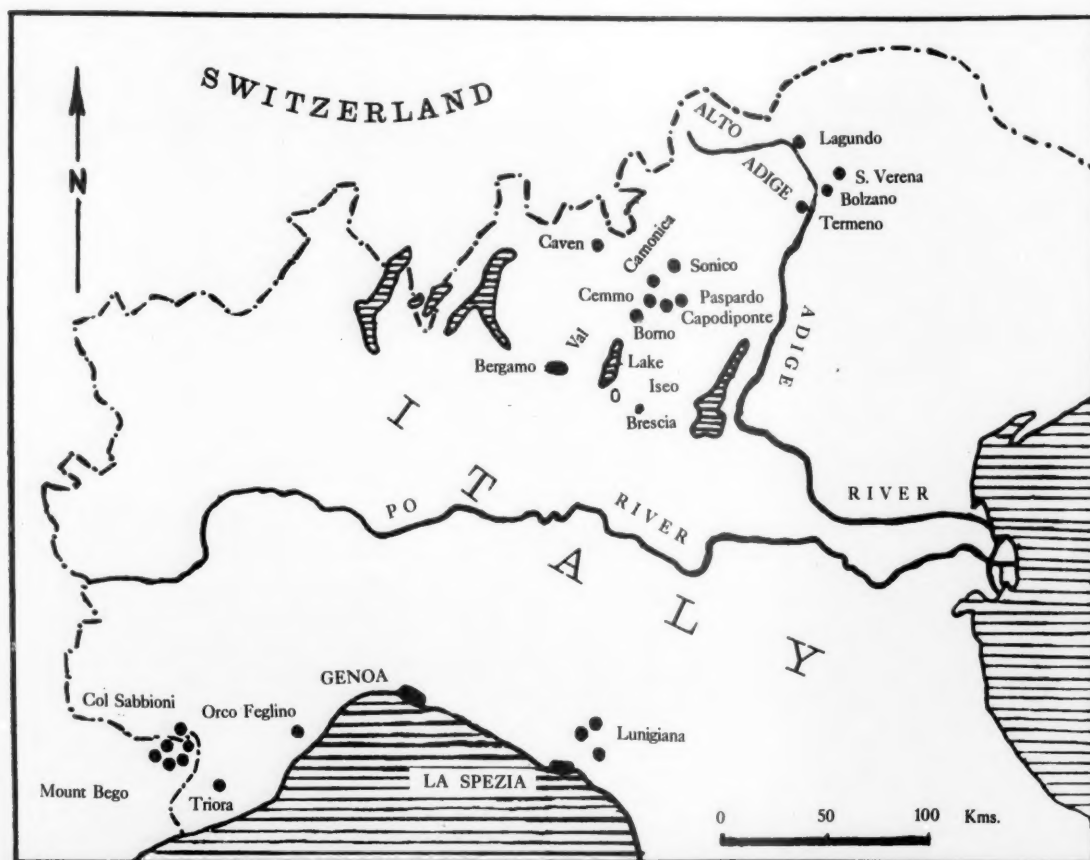
With the arrival of the Incas, about 1475, came new outside influence. But that is another story.

By EMMANUEL G. ANATI

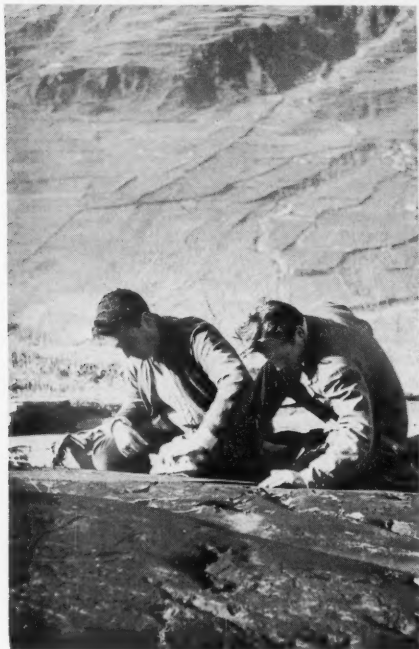
Centre National de la Recherche Scientifique, Paris

During the past two years the author has been engaged in studying the engravings of the French and Italian Alps, and in the framework of this project he undertook two research campaigns in the Camonica Valley of northern Italy. In May 1957, when this article was received, Mr. Anati was preparing to go to the same spot during the summer, for a third campaign.

MAP SHOWING DISTRIBUTION OF ROCK ENGRAVINGS IN NORTHERN ITALY



Rocks must be cleaned of grass and moss in order to find the engravings. Left, the author; right, the local archaeologist, Mr. Mafessoli.



ROCK ENGRAVINGS IN THE ITALIAN ALPS

IN MANY PARTS of the French and Italian Alps a careful explorer can find traces of man's life in early times. This evidence is sometimes in the form of pictures engraved on rock surfaces. The pictures are found in groups of hundreds, sometimes thousands. The best known are those around Mount Bego in the Maritime Alps, at Lagundo near Merano, in the Val Camonica and near Zuschen, in Bavaria. They are found on rocks polished smooth by the action of Pleistocene ice, sometimes in the plains at the foot of the mountains, sometimes on the mountain slopes, up to a height of eight thousand feet. Nearly all these engravings were made by the dotting technique, and their subjects are generally quite similar, although there are some differences from group to group. It seems likely that they were engraved by various tribes which occupied the Alpine area during parts of the Bronze and Iron Ages and were

closely related to each other in their economic systems.

The Val Camonica is situated north of Brescia, between Lake Iseo and the Swiss-Italian border. Here engravings are scattered by the thousands all through the valley, and in some places there are so many that it is difficult to find a well polished rock left bare. This is one of the richest concentrations of Alpine engravings. Without doubt the subject matter is here the most varied, the technique of execution the most skilful; and ethnologically the site is the most rewarding. Some of the engravings in the Camonica Valley have been published during the last twenty-five years, but most of them are unpublished, and no general study has appeared.

One reason for special interest in this group is the possibility of pinning the engravings down to specific periods. Many superpositions and differences in patination help to establish the relative chronology of different

ROCK ENGRAVINGS

continued



phases, while two main factors help in determining dates. The first is that some of the weapons and tools pictured here can be compared with actual tools and weapons already known and classified. The second clue is given by several short inscriptions which are written in an archaic North Etruscan alphabet and belong to the latest pre-Roman period.

The pre-Roman engravings can be divided into four main groups which differ from each other in style as well as in subject matter. The two later groups are clearly from the Iron Age, while the older two probably belong to the Bronze Age. Nearby are also to be found a few more recent incisions and engravings dating from the Middle Ages to the last century.

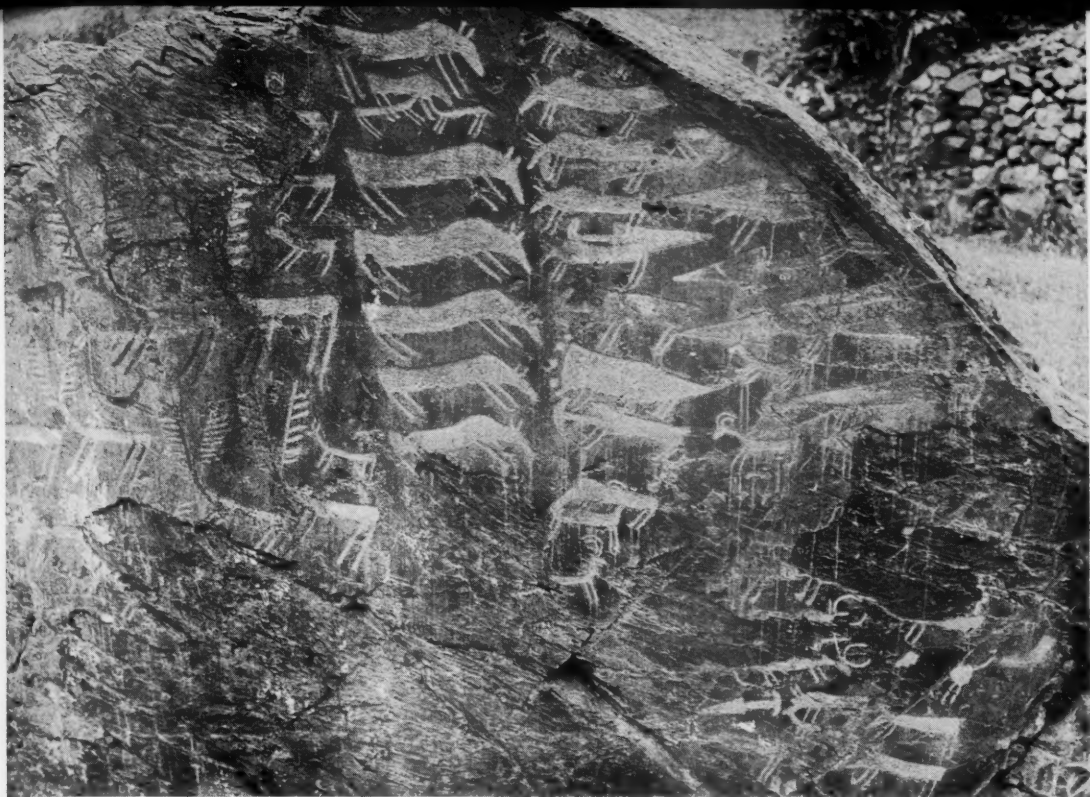
The general development of this art is from symbolism to narrative. The oldest engravings (Style I) are a continuous repetition of signs which probably had religious significance. The subjects most frequently used in this style include the solar disk, the labyrinth and strange compositions of lines and areas covered with dots, surrounded by cup-marks. Groups of schematically drawn praying and dancing men, with hands lifted upward, are also very common.

Style III is a development from Style I, and a clear link exists between the two. Style II, on the other hand,

stands apart—it has very different characteristics and subject matter, and it seems not to be linked either to Style I or Style III. While the other groups belong to agricultural and pastoral communities, Style II seems to belong to a group of hunters. Wild animals are the subjects depicted, with the exception of a few dogs. The artists of this phase grouped the figures of the animals with an amazing sense of composition.

In Style III we can follow a long and interesting development which may be divided into several phases. The static and symbolic signs become more and more naturalistic and narrative. The description of a cult takes the place of its symbols. Finally, in Style IV, we find that engravings with religious significance become fewer and fewer, while the number of scenes showing other fields of human occupation and thought constantly grows. This evolution is probably to be explained by degeneration of the archaic religion. From the artistic point of view the oldest engravings are the most harmonious, but for the ethnologist the latest phase is the richest in study material.

The subject matter of these engravings ranges through a wide repertory, showing hundreds of details from the daily life of these primitive communities, their habits and their economy. Put together, they supply what is



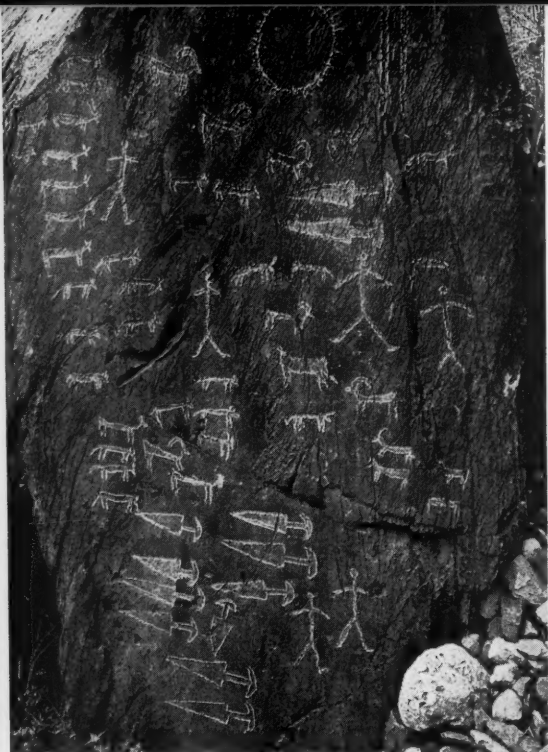
Above: The first engraved rock discovered in the Val Camonica (Cemmo's rock No. 1). Style III (arms, etc.) superimposed on Style II (static but well drawn animals).

Left: Engravings of one style are clearly superimposed on earlier pictures. Here animals of Style II are superimposed on schematic human figures of Style I.

Opposite page: Style IV is dated by archaic North Etruscan inscriptions. Here an inscription dates engravings of a hut, some human figures and a man on horseback.

ROCK ENGRAVINGS

continued



Above: The second engraved rock discovered in the Val Camonica (Cemmo's rock No. 2). All these engravings belong to Style III. The weapons depicted date the style to an advanced stage of the Bronze Age or the beginning of the Iron Age.

Right: A plough and a four-wheeled cart (Style III) from Cemmo's rock No. 2.



Below: A two-wheeled cart of Style I. The technique of engraving was very rough and primitive; the human figures are extremely static and schematic.





Above: The carts were much more developed in Style IV, as shown here. They were much longer than the earlier carts and were sometimes drawn by horses.

Left: Human figure holding what may be a net for capturing game.

Below: Huts supported on piles and animals running about; at the right a dog is running after a deer; at left is a human figure on horseback and other animals.





ROCK ENGRAVINGS

continued

perhaps the best ethnological record we have of a prehistoric society in Europe. The artists represented what went on around them. We see people in their daily surroundings, as well as their tools, their dwellings, their animals; we see them at all their daily tasks, giving a living picture of their industrious and busy life. In some cases entire villages are drawn, with groups of simple huts or more complicated ones supported on posts or on broad platforms. Some of the structures seem to have been sanctuaries; others were dwellings; still others probably served as storehouses, granaries or stables. Dogs and other domesticated animals wander between the buildings; men also appear among them, some armed or attending to various tasks, others riding horseback or just standing.

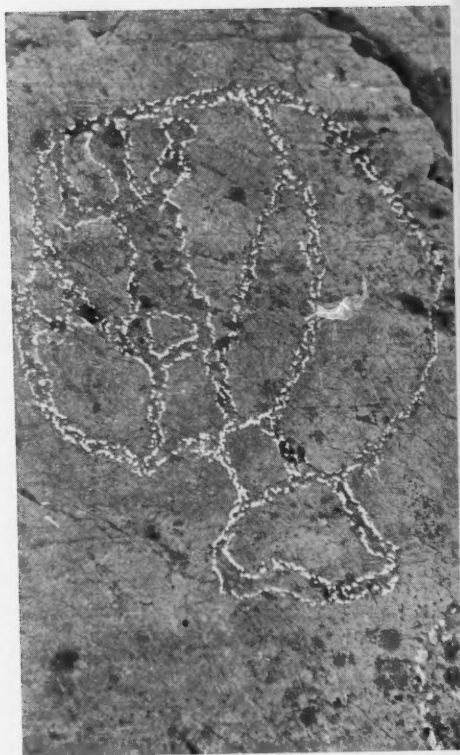
Some scenes reveal to us the religious life of these people: groups of human beings are pictured praying, their hands raised to the sky; others are dancing, probably with religious or magic purpose. Scenes describing sun worship are quite common. In some cases the sun takes the form of a female(?) divinity. Most interesting are several scenes representing a horned divinity surrounded by praying figures. A horned god was worshiped among most of the protohistoric tribes of North and Central Europe, and probably among all the Alpine communities which left rock engravings. In the Camonica Valley we can follow a development of this religion,

Below: Plan of cultivated fields with trees, boundary walls and small connecting paths, as seen by an artist of either Style I or Style III. In a later period an artist of Style IV added a village (in foreground) with huts and human figures. The plan is extremely like the remains of "Celtic camps" discovered in Denmark and elsewhere.

Left: The rock with the plan and the view toward the valley beyond: ancient walls mix with modern ones and still divide the fields. It seems clear that the engraving is a faithful representation of what the artist saw in the valley.

Right: A praying scene of Style I. A large number of people appear to have gathered together for some religious purpose.





Fishing scene. A fisherman, standing in a small boat, is throwing his net. Engraving discovered by Mr. Mafessoli.



Left: A religious scene of Style III: three people are praying before the deer-god, a half-human, half-animal figure seen at the bottom.

Below: In the last pre-Roman period (Style IV) the deer-god is represented with a human body and a horned head. In this scene it seems that a snake is coiled around the god's body. At his feet stands a tiny man in the conventional attitude of prayer, his hands held upward.

Right: "The Devil's scene." A demon, armed with a two-pronged fork, is attacking two armed men who try to defend themselves. Below the demon are several men, probably lying down, all with the right hand amputated.





ROCK ENGRAVINGS

continued

for the oldest representations show the worship of a horned animal, probably a deer, while later a god with a human body and a horned head is clearly represented. Other scenes seem to show a god of crafts and metalwork who has strong affinities with the ancient German divinity Thor.

Several engravings depict various monsters, some with tail and horns, others with animal faces. Some of them seem to represent evil spirits, and in a number of scenes men are shown fighting these spirits. In other scenes appear hero-like figures: big strong men with extraordinarily powerful weapons, fighting and beating other men or even supernatural spirits and enormous snakes or other fantastic animals. These drawings reveal to us an animistic world rich in fantasy and somewhat like that of Germanic mythology.

Many of the scenes reveal the economy of the protohistoric Camunians, showing herds, hunters and farmers. These people at first used two-wheeled and later four-wheeled carts drawn by oxen, and they knew the use of the plough. War seems to have been an especially popular subject with the artists of Style IV, who frequently depict battles or armed combats. A common subject is what looks like a combat, where pairs of war-

rior fight each other with strange movements which seem like those of a dance. Most surprising is a scene where a fisherman, standing in a small boat, is shown throwing his net. It seems that as late as the Iron Age the Val Camonica still had some small lakes. These are now dry but traces are clearly visible in the middle of the valley. There the Camunians went fishing, and around these lakes they built their villages of huts supported on piles.



To complete the story of the Camunians, the rock engravings show us the clothes they wore, the arms they carried and the tools they worked with. During periods III and IV the men wore kilts, and went to war protected by helmets and shields. They had well developed metal weapons, including swords, knives, spears and battle-axes. All these are pictured in their drawings.

At present these rocks are almost the only evidence of protohistoric life in the Val Camonica. The villages which probably existed in the valley are still buried, and the few tools which turn up here and there do not reveal much of the evolution of civilization in the area. But the stones talk to us. They are full of stories giving us all the details of birth, life and death in protohistoric Camunian society.

NEW DISCOVERIES IN WESTERN POLAND

By ZDZISŁAW RAJEWSKI

*Director of the State Archaeological Museum
Warsaw, Poland*



Bone and horn tools of the Mesolithic period found at Biskupin. The barbed object is a harpoon.

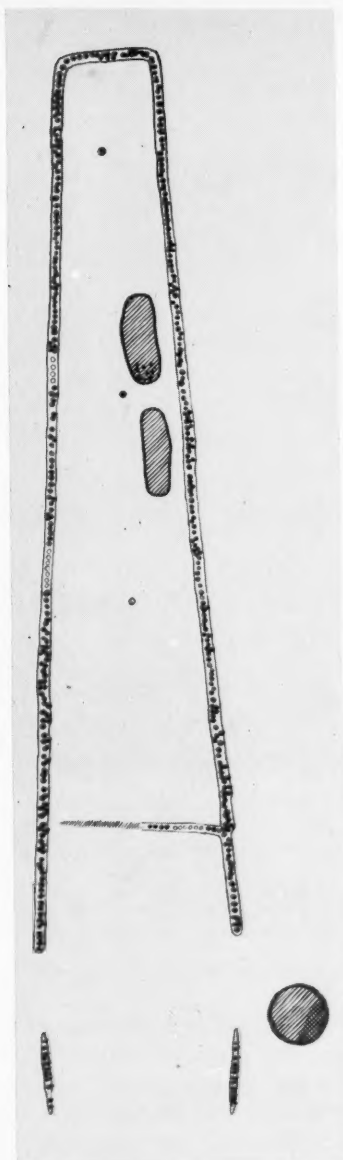
EXCAVATIONS HAVE BEEN GOING ON since 1934 in the area of Biskupin, Znin District, a place about fifty-five miles northeast of Poznan. Recently they have been enlarged to include a whole series of stations along the lakes grouped around the archaeological center of Biskupin. This region, rich in lakes, in fertile fields, in forests and in meadows, naturally attracted various groups of people who flourished there during a long period of time, leaving us the heritage of their material culture. It has been possible to discover traces of occupation from the Epipalaeolithic period (roughly 10,000 years ago) through the Middle Ages.

After the Swiderian and Tardenoisian industry of Epipalaeolithic times, from which come a great number of flint objects and a few tools of bone and horn, follow the various cultures of the Neolithic peoples—the so-called ribbon ware, funnel beaker, globe amphora, corded ware and combed ware cultures.

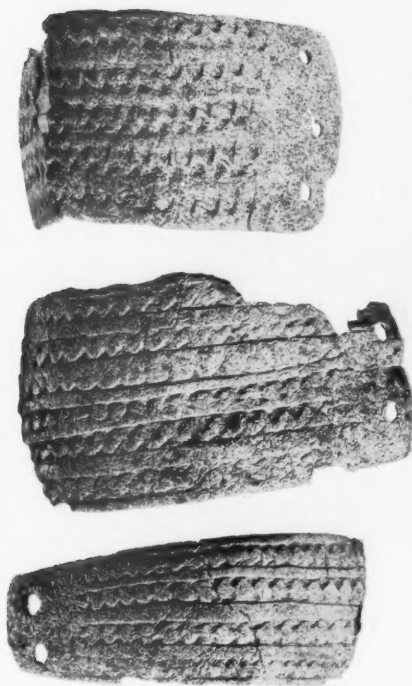
One of the most interesting discoveries was made on a large mound in the midst of the meadows on the edge

of the lake. Here there had stood a rectangular wooden structure, thirty-six meters long, built of posts placed tightly against each other. In the immediate vicinity were found rubbish pits which disclosed traces of a workshop for bone ornaments. Not far away were three graves which contained skeletons lying in contracted position. In one of the graves lay the perfectly preserved skeleton of a woman about thirty years old, adorned with four bone armlets and a necklace of small disks cut from spondylus shells.

On another rise were found foundations of huts, and in these was a rich assortment of debris, including several armlets resembling those mentioned above. Two damaged graves contained contracted skeletons; near one of them had been deposited a mattock and some flint tools. All these finds belong to a settlement of people of the Late Neolithic Tisza culture, known as the Brześć Kujawski group. Very close analogies can be found at Kujawy, where excavation has brought to light similar structures and tombs dated to ca. 2200 B.C.



House of the Neolithic period at Biskupin. Graves were found nearby, but are not shown here.



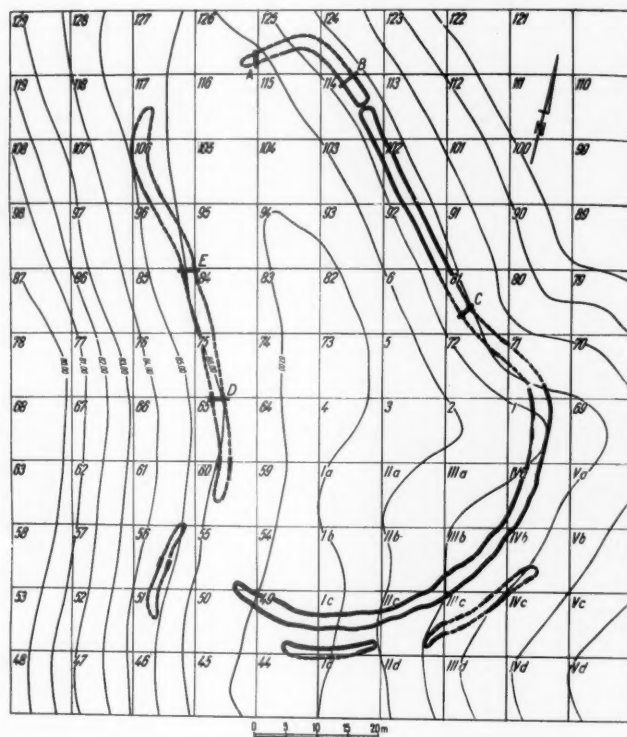
Carved bone armlets found in a woman's grave, dating from the Neolithic period.

Among the important European sites of the Iron Age is Biskupin, in western Poland. A report on the excavation at Biskupin appeared in *ARCHAEOLOGY* 3 (1950) 170-174. Since then work has been proceeding apace, and in the present article the director of the excavations tells us of many new finds of all periods which have come to light in Biskupin itself and in the area around it. A French translation was prepared by Z. Slawska.



Necklace made of disks cut from spondylus shells, found in the same Neolithic grave as the bone armlets.

Plan of the "craal" found at Biskupin, from the Early Bronze Age.



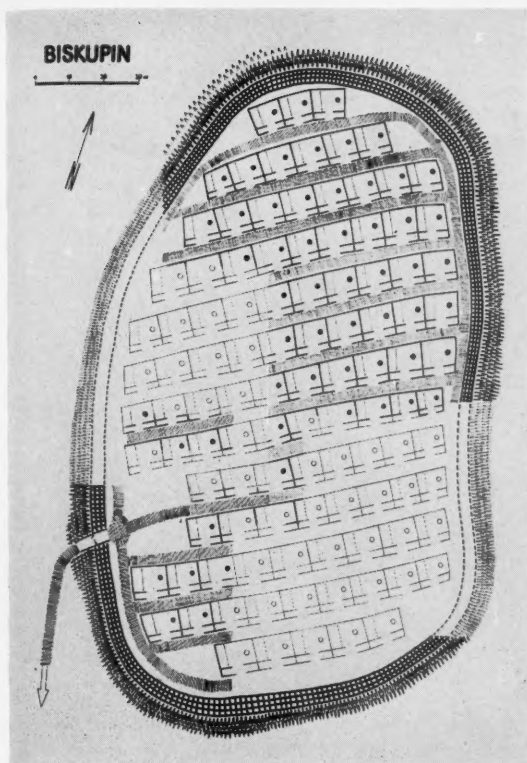
NEW DISCOVERIES IN WESTERN POLAND *continued*

AMONG THE BRONZE AGE REMAINS, the most interesting find—which has no equivalent elsewhere in Europe—was an enclosure and a camp site on an elevation of land called "Góry," situated in the middle of flat prairies, about seven hundred meters south of the lake of Biskupin. The enclosure is a sort of fortification of which the important part was a ditch, or moat (about 1.80 m. deep and 1.50 m. wide at ground level, and from 69 cm. to 1.20 m. wide at the bottom). The enclosure is 90 meters in length and 36-60 meters in width. Its shape is an oval pushed slightly inward, and it is cut through on the south side by two entrances, 7-9 meters wide. Inside the enclosure there was probably a small rampart, parallel to the moat and formed of the sand which had been dug from it. On top of the rampart there undoubtedly was a palisade or a hedge of thorny bushes. Within the moat itself, which had been somewhat widened at these points, were small houses for the guards. Between adjoining dwellings

were narrow passages which led to the interior of the enclosure.

On the site of the dwellings, which were huts of the wattle-and-daub type, were found remains of hearths and other traces of habitation such as fragments of pottery vases, split animal bones, remains of fish, large quantities of fresh-water mussel shells, implements of flint, horn and bone. In one of the houses there were clay weights and fragments of a bronze pin. In the same house were found bits of ocher, which the inhabitants used for staining their skin, according to some ritual custom. Among the animal bones were those of cow, sheep, pig, horse (?), dog, deer, roebuck and wild ox (aurochs). The course of a second moat, parallel to the first, has been established in a limited area.

The situation of the enclosure itself, which was on a considerable elevation and was exposed to the wind, must have kept the cattle free of insects, and the defensive structures protected the whole against the attacks of



Plan of the older of the two Iron Age strongholds at Biskupin (550-400 B.C.), showing the thirteen regular rows of small dwellings surrounded by a palisade.

wolves, lynxes and bears. The enclosure, or "craal," 5000 square meters in area, could have held five hundred head of cattle, counting ten square meters per head, young or adult. The "craal" does not contain any buildings: it is only a closed area, probably divided by partitions into separate compartments for the cattle, sheep and other animals when they were brought in from pasture to be milked, sheared, or the like. The craals which we know among pastoral tribes in Africa are not very different from this. They also are divided by partitions into compartments for calves, lambs and adult animals. Sheep enclosures in the mountains of Poland are similar.

Traces of human occupation within the "craal" of Biskupin show that shepherds occasionally dwelt there, sometimes with their families: among other finds were

two loom-weights. The great quantity of shellfish shows that fresh-water mussels served as food for human beings and, undoubtedly, as feed for pigs. The graves of the period also contain mussels, which were intended as food for the dead on their last journey.

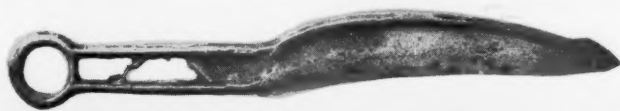
On the basis of the ceramic material, we date the "craal" of Biskupin to the period 1600-1500 B.C. Its culture is similar to that of Iwno, thirty miles to the north.

With the exception of rare finds of bronze objects, some hoards of bronze ornaments and tools, and a few isolated graves, we have not yet discovered extensive traces of Middle or Late Bronze Age occupation at Biskupin. It is only with the Early Iron Age (550-400 B.C.) that we can recognize permanent occupation by people living in fortified enclosures which they constructed, as well as the comings and goings of tribes who left in their burials easily recognizable traces of a temporary stay.

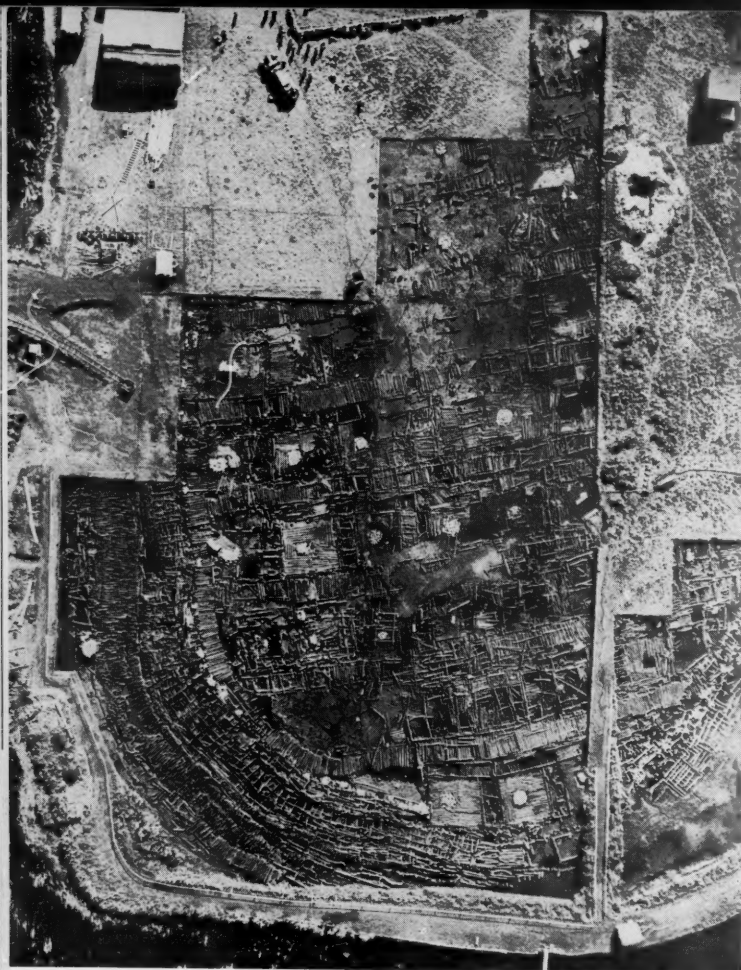
THE TWO PHASES of the fortified Iron Age settlement have been well known for many years. It occupied an area of about five acres on the marshy island which once existed in the lake of Biskupin. In each period the settlement was protected by a breakwater of oak or pine posts and surrounded by a wooden rampart reinforced by earth. A single entrance led into an open place, the so-called meeting place. From a single street encircling the dwellings extended cross-streets which separated the thirteen rows of houses, all nearly the same size. There were 102-106 houses in the enclosure, each house divided into two rooms—one large room with a hearth and a wide sleeping place serving for the family, and a small vestibule which sheltered the cattle in winter.

The number of inhabitants is estimated at eleven or twelve hundred. The social structure was that of large patriarchal families subdivided into individual families, each of which occupied one house. The plan of the wooden structures in the stockade is in itself the most convincing proof of the rigid system of organization which prevailed among these tribes. Engaged as they were in constant fights with each other, they had learned how to erect imposing defensive structures which protected the people and their common property. This type of fortified enclosure marks the apogee of the architecture of the people who were living in Polish territory at that time.

An enormous quantity of finds—artifacts, rejects,



Late Bronze Age knife found in the fortified enclosure at Biskupin.



Air view of a portion of the area excavated from 1934 to 1938. An idea of the huge extent of the settlement can be obtained from this view.



Central and eastern part of the fortified Iron Age enclosure. Remains of both construction periods are shown. (Photograph taken in 1939.)

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NEW DISCOVERIES IN WESTERN POLAND *continued*

raw materials—indicates the various occupations of the people. Their major work was agriculture (they grew wheat, barley, millet, beans, peas, lentils, flax). Second in importance was the raising of domestic animals—pigs, cattle, sheep, goats, dogs and horses (75% of the bones found are of domestic animals, 25% of wild animals), then hunting, fishing and food gathering, and finally the crafts of carpentry, bronze-casting, pottery-making, weaving and work in bone, horn, wood and stone. Their pottery was attractive and varied; the many cult objects indicate beliefs founded on the relationship of man to nature.

Special mention should be made of imported objects, of which there are numerous examples at Biskupin. We shall mention here only a few. There are Egyptian beads of glass paste, a pin originating in Thuringia, an ornamental plaque (for clothing) imported from Italy, a bronze horse-bit from Hungary, ornaments made of Baltic amber, and several painted vases probably produced in Silesia. A bronze object of Scythian origin might be evidence of a Scythian raid against an earlier stronghold. More numerous Scythian objects have been found in other fortified settlements (Kruszwica, Kamieniec) located near Biskupin.

Five miles west of Biskupin, on a marshy island in the lake of Izdebnó, was discovered another fortified

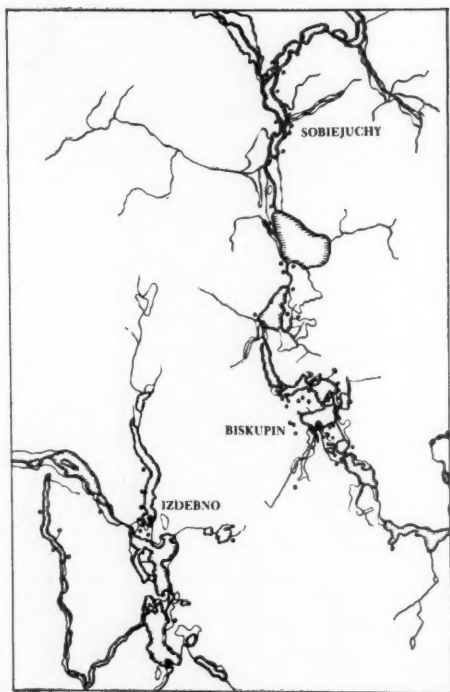
town. This also had two successive phases of occupation. The extent of this town, like that of Biskupin, is some five acres. A trial trench revealed an assortment of objects no less rich, giving proof of long occupation and the practice of various crafts. Molds for casting metal by the *cire perdue* process were found. Certain parallels enable us to observe that there was communication between the people living at Izdebnó and those at nearby Biskupin.

A third fortress was uncovered at Sobiejuchy, seven miles north of Biskupin on what once was a sandy island in a lake joined to the Biskupin lake by the small Gasawka River. This stronghold, over thirteen acres in area, is the largest known in Great Poland. A trial trench permitted us to ascertain here, as at the other sites, two occupation phases as well as a great variety of archaeological material. Under the embankment of the rampart were found the skeletons of several defenders of the town. This settlement is the oldest of the three, and it may have been the "mother hive" from which swarmed the groups that founded the settlements of Izdebnó and Biskupin.

Along the lakes, near these three strongholds, we have found evidence of open camp sites, traces of cultivation and of grazing, as well as of burial places. In comparison with the material from the fortified com-

Recent excavation at Biskupin. The difficulty of digging in this marshy area is obvious. At the upper left corner of the square can be seen a large wooden trough of Iron Age date (550-400 B.C.).
Left: A close-up view of the wooden trough shown in picture at right.





Map showing Biskupin and its environs. The location of other contemporary fortified settlements from the Iron Age is indicated.

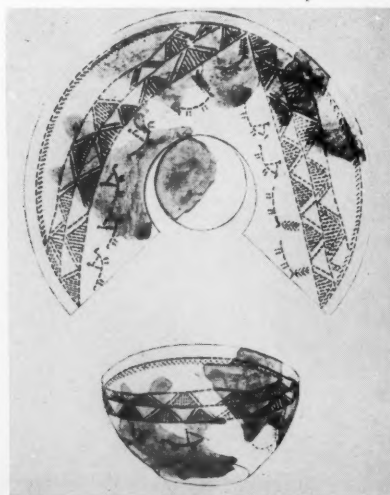
munities, that from the camp sites shows considerable poverty. Some of these sites are contemporary with the period of construction of the strongholds; others date from the time after their abandonment. They betray the fact that the tribal organization was growing weaker. On the island in the lake of Biskupin a new people set up an open station on the very ruins of the second stronghold. From their occupation we have an interesting hoard which includes iron armlets, four axes, a horse-bit, a knife, a sickle and two iron sockets. It may be presumed that this treasure belonged to one of the more affluent members of the group; the date of its deposition is 400-350 B.C.

A few sporadic traces indicate the presence of people of the Late Iron Age who used cist and bell-shaped graves; both inhumation and cremation were practised. Certain tombs containing skeletons seem to reflect Celtic penetration.

THE PERIOD FOLLOWING, when Late Roman influence is in evidence, is represented by much more imposing material remains, particularly a local iron industry which furnishes proof of active contact with the Roman provinces. From this time on the peninsula of Biskupin was inhabited without interruption until the twelfth century. Judging by their ornaments especially, the inhabitants must have belonged to rather well-to-do families, distinguished by social rank from their neighbors who still lived in the old communities.

About the end of the sixth century a new fortress was built on the Biskupin peninsula; three objects of Avar

NEW DISCOVERIES IN WESTERN POLAND *continued*



Pottery bowl (drawing) with incised geometric decoration, including schematic animals, some with riders (550-400 B.C.).

type were found in the wooden palisade which surrounded it. A denser settlement existed in the vicinity. The inhabitants of the stronghold on the peninsula began to undergo the process of feudalization, which entailed the construction of a strong fort occupying about half an acre. Here was the seat of government and a military guard; the rest of the area was occupied by a simple town inhabited by artisans whose products attracted the people of the surrounding district. Nearby were tar works and smoke-houses, while in the surrounding villages iron founding was practised along with agriculture and animal breeding. Gradual evolution led, in the tenth century, to the founding of a larger and more important fort (600 square meters), built on the ruins of the earlier one; in the area around it were concentrated the markets and workshops, while the villages of the region, scattered over a vast territory of more than 200 square kilometers, were, as before, subservient to the authorities dwelling in the fortress.

During the course of the twelfth century this feudal organization, along with the fortress on the Biskupin peninsula, was wiped out by the duke residing at Gniezno, who presented some of the villages to the archbishop of Gniezno. A bull issued by Pope Innocent II in 1136 mentions this gift, calling one of the villages "Starzy (old) Biskupici," thus designating the people and the village as belonging to the bishop (Polish *biskup*, from the Greek *episcopos*). The village of about twenty-two houses, which evolved from the old settlement, was discovered on one of the large mounds at the edge of the lake. The present village of Biskupin, which

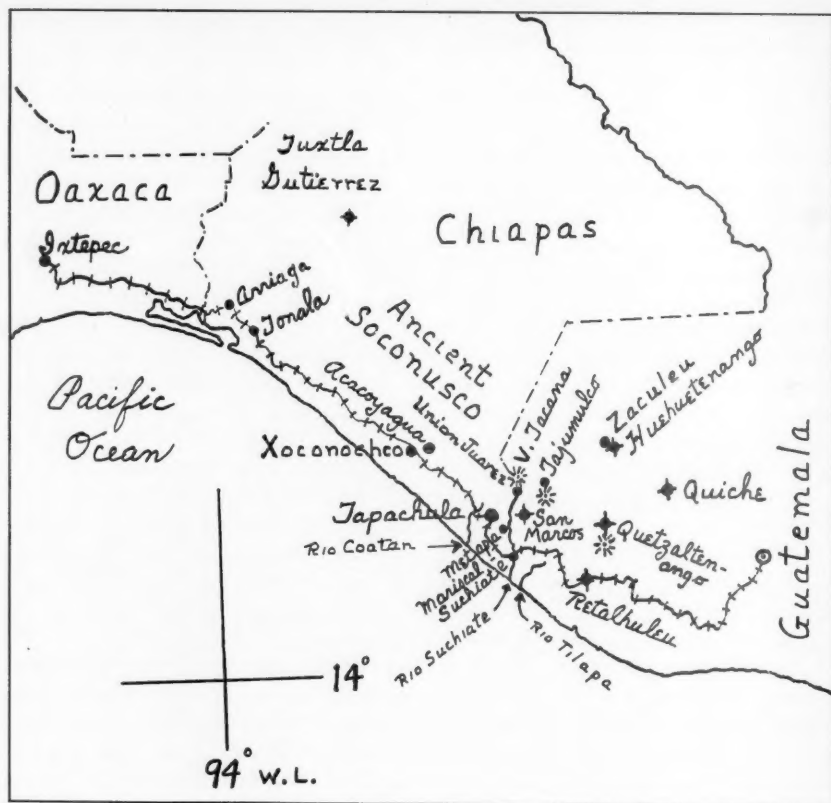
was transferred to another site in 1325, still keeps the ancient name.

ARCHAEOLOGICAL RECONNAISSANCE continues here on a large scale under the auspices of the Polish Academy of Sciences and the supervision of the Archaeological Museum of Biskupin. Practical courses are given each year for students of prehistory from all the Polish universities, introducing them to various methods of excavation. Biskupin has become an attraction for tourists from all over Poland as well as foreign countries. The visitor can see not only the remains of an ancient settlement but also actual reconstructions of Early Iron Age fortifications, a museum containing rich collections, and laboratories and storerooms where the finds are carefully preserved.

Thanks to substantial subventions from the State, Polish archaeology has at its disposal all the means for expanding and for conducting investigations according to the most modern methods. More than eighty sites, representing all periods from the Palaeolithic to the Middle Ages, are at present being investigated by the Institute for the History of Material Culture of the Polish Academy of Sciences, the Ministry of Culture and Fine Arts, the archaeological museums and the universities. These investigations constantly bring forth new and extremely rich material for the study of primitive societies in Polish lands and their gradual evolution toward feudalism. Contributions of high scientific value have resulted, especially regarding problems touching upon the history of the origin of the Polish State.

Reconstruction in actual size of part of the Biskupin fortress, as it appears today, showing wooden breakwater and rampart.



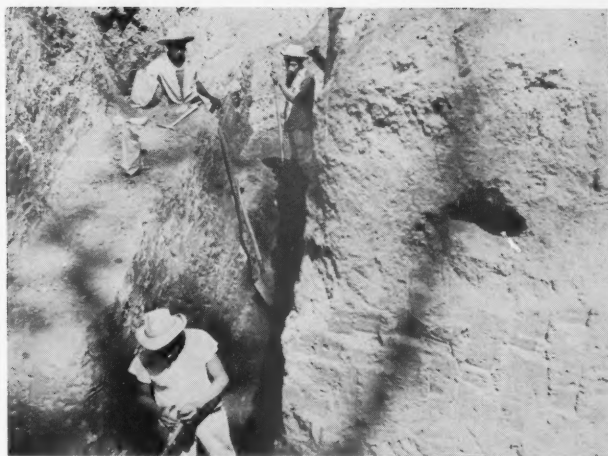


BY BERTHA P. DUTTON

STUDIES IN



Site T.6, Metapa, before excavation. Even though the site was located in a field producing its first crop of corn, it was a considerable chore to clear away the jungle growth. Here workmen are removing tree trunks, corn stalks and verdant plants which thrive in the volcanic ash and rich humus.



Excavating Site T.6, Metapa. Eight-hour days of steady work with pick and shovel by sturdy laborers of the vicinity soon carried the trenches through the uppermost ash covering, the relatively dry earth beneath, and the ever moist lower part of the mound. On the block of earth at the left were traces of red-painted plaster.

ANCIENT SOCONUSCO

MEXICO'S SOUTHERNMOST CITY OF IMPORTANCE, Tapachula, and the region surrounding it have remained little known to the *Norte Americanos* (as we are designated when the less polite term, *gringos*, is not applied). The elevation of about 625 feet above sea level and a warm, humid climate have not made this metropolis an objective for many travelers. Explorers, business men, government agents and the like have come to know this southern tip of Mexico, but the guide books and tourist literature seem not to consider the possibility of any one else's stopping there. Transportation barriers have kept Tapachula relatively shut off from the northern part of Chiapas and from the other states of Mexico.

The conveniences now necessary to mankind, the lack of which has kept southern Chiapas almost a *tierra incognita* in recent centuries, were unthought of and quite

unnneeded by the ancient inhabitants. Trails traversed the region and communication was unhampered. Here was the center of an advanced culture; here was the ancient Soconusco. The old territory or province of Soconusco lay between Oaxaca and Guatemala. It embraced the districts of Tonalá, Mariscal and Tapachula on the Pacific littoral, and the departments of Huehuetenango and San Marcos, and parts of Quiché, Quetzaltenango and Retalhuleu, in Guatemala. Soconusco was the homeland of a large population of Mam-speaking people, the language being of Mayan derivation. In Soconusco the most important center appears to have been Xoconochco, "place of the prickly pear," near the modern town of Acacoyagua, approximately forty miles up the coast, northwest of Tapachula.

In Guatemala an important Mam center was Zaculeu,

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STUDIES IN ANCIENT SOCONUSCO *continued*

near Huehuetenango. Here extensive excavations were conducted a few years ago and valuable data were brought to light (Woodbury and Trik, *The Ruins of Zaculeu, Guatemala*, 1953). The distance between the two ancient centers, Xoconochco and Zaculeu, is about eighty miles as the crow flies, and they are located in approximately the same latitude. Between these two sites, at a point slightly more than one-third of the way from Zaculeu to Xoconochco and about twenty miles south of it, is Tajumulco volcano—the highest peak in Central America, 13,816 feet—in present-day Guatemala, very close to the Mexican border.

On the northwestern folds of the volcano, about midway to the summit, is the village of Tajumulco, where the Mam language is still spoken. Close by are the ruins of a prehistoric settlement. It was my privilege to excavate at this site, some years ago, for the Museum of New Mexico and its mother organization, the School of American Research (Dutton and Hobbs, *Excavations at Tajumulco, Guatemala*, 1943). One of the more important results of that work was the finding of a notable amount of a type of pottery known as Plumbate ware, a glazed ware the surface of which is metallic in appearance but which actually contains no lead. Plumbate pot-

tery serves much like a guide fossil in geology. Since it was manufactured for a relatively short time, perhaps 150 to 250 years, it has definite chronological importance. Plumbate ware and a number of associated culture traits occur rather late in the prehistoric time scale of Mesoamerica. Plumbate pottery of the fully developed variety (*Tohil*)—represented largely by effigy vessels in human, bird or animal form—was traded extensively. It is found from Tola, in Nicaragua, to Tepic, Nayarit, in Mexico, and serves as a helpful tool in dating archaeological sites throughout that expanse of territory. Two other variants of Plumbate ware—an earlier, non-effigy species called *San Juan*, and *Robles*, which embraces non-effigy and effigy forms and which appears to be intermediary between San Juan and Tohil—have now been recognized. Some of the Tajumulco vessels and potsherds are of the Tohil variety, but there is also pottery of the Robles kind, and possibly a few examples of San Juan.

Extensive surveys and some excavation in the southwestern part of Guatemala, and two brief trips into the Chiapas highlands, were made by Edwin M. Shook of the Carnegie Institution of Washington, following my work at Tajumulco. These tended to show that the area in which Plumbate ware was probably produced is to be



A view at Media Monte, showing the low mounds of our Site T.15, south of T.6. Here stratigraphic tests were made.



Robles Plumbate jars from site T.6, Metapa (diameters 19, 10 and 7.5 cm., respectively). The smallest vessel has "blind" indented decoration at the base of the neck; the largest is undecorated; the third jar has molded decoration above the shoulder. A similar example was unearthed at Tajumulco.

found between the Rio Coatan in Chiapas and the Rio Tilapa in Retalhuleu (Guatemala), and that it is possible that Plumbate of the San Juan, Robles and Tohil phases may have different sources—though these may not be far apart geographically.

Consequently, when another expedition into Mesoamerica was made possible I decided to center my research in the Chiapas section of the above-mentioned region—part of the old Soconusco province. With an able assistant, Miss Gillian Wethey (now Mrs. John McHugh), in an especially fitted vehicle of the panel delivery type, I drove down through Mexico during November 1953. Along the way we investigated many Classic and Post-Classic archaeological sites, and inspected museum collections. We paid a brief visit to northern Chiapas, then placed our automobile on a flat-car at Arriaga for the twelve-hour journey (some 125 miles) to Tapachula. From there we drove the remaining ten miles to the Guatemala border.

For a month we lived in Guatemala, devoting ourselves to the study of Plumbate ware and associated materials, both in the excellently arranged collections of the National Museum and in private collections. We concluded our stay at Quetzaltenango, where we studied

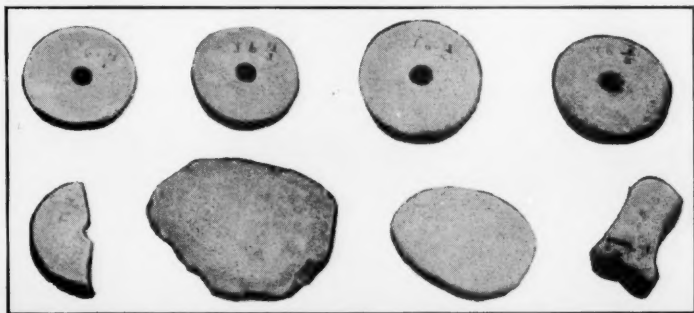


Grinding implements: effigy metate and cylindrical mano found near the Metapa mounds. Similar objects occur at Tajumulco.



Sculptured stone head of a wildcat from Site T.6, Metapa. It is well executed, with deep eye sockets, wide nose, rounded ears and open mouth. Length 14.5 cm.

Spindle whorls, worked sherds, and whistle(?) fragment. The mold-made whorls, of buff or orange clay, are undecorated (diameter of largest 4.1 cm., thickness, 0.9 cm.), and taper from top to base. The sherds seem to be Robles Plumbate. The whistle fragment, of light gray clay, is 3.8 cm. long.



Unslipped buff-colored vessels excavated at Site T.6, Metapa. *Left:* the Bat God (diameter 6 cm.); *right:* basal portion of an effigy jar showing short tail, two legs and feet with four claws. Both vessels have painted black dots, and the Bat God's eyeballs are painted black. This type is common in Oaxaca (Monte Alban IIIa period).



STUDIES IN ANCIENT SOCONUSCO *continued*

the valuable pottery assemblage of Sr. Vitalino Robles (for whom the third variant of Plumbate has been named). Then, equipped with photographs, sketches, notes and all the information regarding Plumbate pottery that we could crowd into our heads, we returned to Tapachula.

During the last half of January 1954 we carried on a survey northwest and northeast of Tapachula, locating sites and collecting materials and data. At Muxbal, situated directly on the international boundary near Union Juarez, we were within twelve miles of Tajumulco, which afforded an excellent opportunity to correlate facts gleaned from my two expeditions.

Returning to Tapachula, we decided to concentrate our investigations in the region toward the southeast, despite the fact that this was the long-dreaded *Medio Monte*, where we had been warned that it would be impossible for us to work—at least without permission of the Mexican army officials and a military guard of four or five men. The idea of such a retinue did not appeal to us. Instead, we engaged the services of a young man who

had a pleasant manner of dealing with the countryfolk, and with him we set forth each day to further our archaeological knowledge. Within five days we located sixteen sites in the region south of the Tapachula-Guatemala highway and along the route to Suchiate. These ranged from ruins represented by one or two mounds to assemblages of several or many mounds—from low platform structures to high, extensive eminences. We took photographs and prepared rough sketch maps of these prehistoric centers, and obtained sherd collections and an occasional stone artifact.

At our Tapachula headquarters in a small hotel our collections were washed, numbered, sorted and studied. From these it appeared that a site very close to Metapa (designated as T.6 on our survey) offered good possibilities for the recovery of Plumbate ware. This mound cluster is located on the Rancho San José, owned by the mayor of Metapa, Sr. Francisco Mejia Lopez. Sr. Mejia was interested in our endeavors and was willing to let us excavate. Furthermore, he said he would officially guarantee our safety and assure us of good workmen.

Pottery jars secured during the survey, from Axintal ejido, Metapa. *Left:* globular vessel of gray clay with pedestal base (height 11.5 cm.). A turtle head with incised and punctate features is applied to the shoulder; body features are indicated by grooves. *Center:* jar with pedestal base (height, 13.8 cm.), soft orange paste with friable red slip. *Right:* barrel-shaped jar (height, 16 cm.), smoothly finished gray paste with traces of red and orange; the thick white slip is much worn.





Effigy jar depicting the Mexican rain god, Tlaloc. This superb pottery vessel was painted in various colors: black, several shades of red, blue and white were used to emphasize details of features and ornaments. Both clay and paints contain much specularite. Height 14.5 cm.

Accordingly, on February 1, work was initiated at T.6, Metapa, with ten laborers. Only the year before all this land had been covered with jungle growth. Inasmuch as the first crop of corn was just being harvested, the men who were engaged to clear the areas which we wished to investigate did not have the knowledge which results from long tilling of a particular plot of ground. The eruption of Santa Maria near Quetzaltenango, in 1902, had deposited a layer of ash over all the country round. At Tajumulco an ash stratum about forty inches deep had filled the plaza areas. Here, in the Metapa vicinity, the deposit was only eight to nine inches in depth, but nevertheless surface features were generally obscured, and this deposit accounted for our failure to find sherds and other artifacts on sites where the soil had not been worked. Although it was fully realized that mounds commonly yield little in relation to the amount of excavating required, it seemed desirable to learn something of the building method and purpose of a typical mound in this area. There were fourteen earth mounds, ranging

from low knolls to small and medium-sized hillocks. No trace of masonry was to be seen.

A medium-sized mound was chosen. One trench was run into it from the north and another from the east, both proceeding to the center of the mound, on a level judged to be at, or close to, the base of the construction. At varying depths ceramic pieces and an occasional stone artifact were unearthed. In a few instances fragments of earthen walls were encountered, but none that extended far enough in any direction to afford much knowledge of the architecture. In a few places thin plaster—one or two layers—of rich, red color adhered to the walls; frequently the pigment showed heavy burning and discoloration.

Far down in the north-south trench a number of rounded river pebbles, some of them a foot or more in diameter, were encountered. Sometimes only two rested together, sometimes more, and at one location they formed a crude altar. Here great quantities of large, ornate potsherds, some with significant decoration, hand-



Sra. Elpidio Lopez, of El Dulce Nombre, near Metapa, holding effigy fragments from Tohil Plumbate jars found in the cornfield.

STUDIES IN ANCIENT SOCONUSCO *continued*

fuls of obsidian flake blades and chips, and an occasional spindle whorl were intermixed with heavily carbonized earth. Doubtless offerings were deposited here, copal was burned and minor sacrifices were made, in honor of some ancient deity or of some ritualistic event—much like the *Guaixaquip Bats* ceremony, a calendrical observance still performed at Momostenango, Guatemala.

The excavation produced twelve specimens of pottery, eight complete or nearly so, the remainder restorable. There were five undecorated spindle whorls and half of another—all of the mold-made type. Two worked sherds were found. There was the lip end of an earthenware object which appeared to be a whistle, except that the air channel was not open throughout; it might, of course, have been of a ceremonial nature, such as some pipes excavated at Tula, the ancient Toltec capital in the Mexican highlands. There was another wind instrument, shattered but restorable, of pear shape, with a hole pierced through one surface and two holes on the opposite side.

Many obsidian flake blades, including minute lance-like implements and small knives, and quantities of chips were recovered, but no cores from which these might have been struck. Besides fragments of millstones, there were a few complete pestles and *manos*. One stone sculpture of a feline head was found, which the workmen identified as a wildcat. Only two small ornaments were

found, both jadeite—a disc bead and a portion of a thin pendant. These had been deposited in a pottery jar which depicted the Mexican water deity, Tlaloc.

The trenches were carried to a level below the base of the mound structure; the axial region was thoroughly investigated, and thus we determined that no tomb, burial or other feature existed there. Though many of our findings were of a negative nature, we have learned certain things about the mounds at T.6, Metapa, and the culture represented there. We have determined that Robles Plumbate ware is well represented, and that the Tohil variety (apparently an early stage of development with some forms not previously reported) also exists hereabouts. Our specimens indicate that the site was occupied during early Post-Classic times. Full study is expected to show that this was a modest community dating between A.D. 700 and 900 or 1000. It is hoped that analyses of the Plumbate material here derived may further elucidate the problems pertaining to this intriguing ceramic type, and perhaps give another clue to its place, or places, of origin.

In two or three outlying areas not far from T.6 test trenches were run to obtain comparative sherd material. Among other wares Plumbate fragments were recovered. These sherds, with others from tests farther afield, should provide considerable information regarding the region around Tapachula, the heartland of old Soconusco.



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STELAE AND COINS

IN STUDYING ANCIENT GREEK COINAGE one is often struck by the resemblance of subjects used by minters of coins and by sculptors. An especially striking example is one in which seven coins coming from various places show the same subject as that which appears on three funerary stelae. The design shows two he-goats face to face, standing on their hind legs.



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By RENA EVELPIDES



STELAE AND COINS *continued.*

The first of the three stelae (shown on page 55) is in the National Museum at Athens; the other two are in the Piraeus Museum. All these sculptures date from the fourth century B.C.

With these monuments may be compared the representations on seven coins. The first two (1 and 2) are bronze coins from Amphipolis in Macedonia, dating after 148 B.C. On the obverse is a head of Artemis Tauropolos, on the reverse the two goats. Three others (3-5) are bronze coins of Thessalonica, dating from the first century B.C. The obverse bears a head of Zeus, the reverse the two goats. Another example (6) is a bronze coin of Sagalassus in Pisidia, also from the first century B.C. The obverse bears a head of Zeus, the reverse again the two goats, with their forefeet resting on a column, as in the sculp-

ture shown on page 55. Finally, we have a bronze coin (7) of Cius in Bithynia, of the Roman Imperial period (second century A.D.). The obverse bears a head of Caracalla; on the reverse the two goats stand upright, their forefeet resting upon a large amphora. This coin is especially like the stele shown above at the left, where there is a cantharus between the two goats.

The fact that the two goats occur on funerary stelae can be explained by the association of the goat with Dionysus, protector of the dead. As for the coins, one may assume that the engravers simply copied an attractive decorative motif.

It is interesting to find a motif created by sculptors of the fourth century B.C., or even earlier, revived by coin engravers at a later date and continued in use for four centuries.



ARCHAEOLOGICAL NEWS

Obituaries

The past year has taken a heavy toll among archaeologists. We record the following deaths of distinguished scholars:

CHARLES DUGAS, authority on ancient Greek ceramics (died October 4, 1957, at the age of seventy-one);

PAUL JACOBSTHAL, author of numerous works on vase painting and other facets of ancient Greek art (died October 27, 1957);

O. G. S. CRAWFORD, pioneer in archaeological air photography, Editor of *Antiquity* (died November 28, 1957, at the age of seventy-one);

DAVID M. ROBINSON, excavator of Olynthus, author of many volumes on Greek archaeology (died January 2, 1958, at the age of seventy-seven).

Correction

In connection with the obituary for Grace M. Crowfoot in our Winter 1957 issue, we mentioned Mr. John W. Crowfoot as no longer living. To Mr. Crowfoot, now eighty-four years of age, we offer an apology for a bad mistake and a sincere wish that he may long continue to flourish.

AIA General Meeting—1957

The Fifty-ninth General Meeting of the ARCHAEOLOGICAL INSTITUTE OF AMERICA, held December 28-30, 1957 at the Statler Hotel in Washington, D. C., in conjunction with the Eighty-ninth Annual Meeting of the American Philological Association, drew a very large attendance from all over the country.

The thirty-two papers read at five sessions were all illustrated and covered a wide variety of subjects, including reports of recent excavations. We can mention them only briefly.

The first session included seven papers. Emily T. Vermeule's study of "The Mycenaeans in Achaia" showed

that in outlying areas Mycenaean civilization may have continued long after the main centers—Mycenae, Pylos, etc.—had been destroyed. Michael Jameson discussed early Greek sacrificial practices and their development. Charlotte R. Long presented a new interpretation of a passage in Thucydides, identifying the Delian tombs he calls "Carian" as Mycenaean. Irene R. Arnold discussed "Agonistic Festivals in Italy and Sicily," showing that Greek festivals played an important part in Roman life. Van L. Johnson's paper dealt with the Roman calendar. A. L. Boegehold identified tokens used in the Athenian law courts, such as are mentioned in Aristotle's *Constitution of Athens*. The final paper was W. Kendrick Pritchett's "Toward a Restudy of the Battle of Salamis."

The second session was devoted entirely to reports of excavations conducted during 1957: "The Royal Tomb at Gordion" by Rodney S. Young; "The Princeton Excavations in Sicily, 1957" by Erik Sjöqvist, "Activities in the Athenian Agora" by Homer A. Thompson; "Excavations in Alcudia, Mallorca (Balears)" by Daniel E. Woods; "The Palace of Nestor, 1957" by Carl W. Blegen (read by Cedric Boulter).

At the third session Ida Bobula offered a new explanation of a puzzling omega-shaped symbol found on Mesopotamian boundary markers of the Kassite period; she interprets it as a rainbow. Elmer G. Suhr discussed "The Evolution of the Mesopotamian Cone and Spindle." "The Inscribed Jar-Handles from Gibeon" was the subject of James B. Pritchard's paper; these interesting finds have already been described in *ARCHAEOLOGY* 10 (1957) 282. Philip Mayerson's "Survey by Jeep of the Southern Desert of Palestine" resulted in the conclusion that this inhospitable region has always been inhabited but that the density of population fluctuated owing to politi-

cal and economic factors. William K. Simpson reconstructed a gold and silver vessel from Bubastis by joining fragments in Berlin and New York to the main body of the vase in Cairo. A report on the 1957 excavations at Lerna, by John L. Caskey, was read by George Bass. Finally, a joint paper by Ann Perkins and Saul S. Weinberg demonstrated similarities between Greek Middle Neolithic Urfinis pottery and Near Eastern Halaf ware, and Late Neolithic matt-painted pottery and Ubaid ware, thus offering new possibilities for relative dating of the Greek Neolithic.

The fourth session opened with J. Lawrence Angel's paper on "The People of Lerna," a study of the skeletal material of the Middle Bronze Age from that site. A chronological sequence for Italic warrior figurines antedating the Hellenistic period was presented by Quentin Maule. A study of a terracotta statuette of Cybele from Gordion was offered by R. Ross Holloway, who traced the type back to a cult statue in the Athenian Agora. Dericksen M. Brinkerhoff attributed the statue type showing Aphrodite binding her sandal to northwest Asia Minor at the end of the third century B.C., and showed the implications of this theory. George E. Mylonas presented a paper on the unique Proto-Attic amphora found at Eleusis (see *ARCHAEOLOGY* 10 [1957] 245). He names the artist the "Polyphemos Painter" and dates the vase 675-650 B.C. In a paper by Frederick R. Matson and Henry S. Robinson present-day practices at a potter's shop near Athens were discussed in relation to those of ancient times. Marvin C. Ross, in the final paper of the session, gave reasons for suggesting that a sixth-century Byzantine silver treasure in Kiev originated in Constantinople, not in Syria.

At the last session Gus W. Van Beek discussed marginally drafted, pecked masonry, used widely in the ancient

East, and its development from earlier "rusticated" masonry. Frederick E. Winter, in a paper on the fortifications of Side in Pamphylia, argued that the Hellenistic portions show remarkable technical development and bear out descriptions by Hellenistic military writers. Slot ceilings, although not so widely used as coffer ceilings in Classical Greek buildings, were quite frequent, according to A. Trevor Hodge, and deserve more attention. Examples were cited from Olympia, Athens, Sunium and elsewhere. William McDonald's paper on the plan and construction of the Circus of Maxentius showed that this best preserved of Roman circuses may, because of its date, be taken as typical of a large group of important structures. Djemila (ancient Cuicul), in North Africa, was the subject of Raymond V. Schoder's paper; he described the various stages of the city's development. M. Katherine Donaldson, the final speaker, discussed interpretations offered by various early travelers of Hadrian's Arch, the Monument of Lysicrates and the Parthenon.

Although this year's program included no symposium, there was a session on Mycenaean studies, under APA auspices, which contained much of interest for archaeologists. Because of its importance we present a separate report below.

At the joint AIA-APA dinner the speaker was Professor William F. Albright, whose subject was "Recent Archaeological Developments in Palestine and Syria." After brief mention of Syria and Lebanon, he enumerated the expeditions now active in Jordan and emphasized the unusual interest in archaeology which prevails in Israel. Among outstanding developments of recent years Prof. Albright noted the discovery of a Neolithic pre-pottery culture at Jericho, and predicted that other pre-pottery sites will be found. A good many, he said, may be below the present water table and thus difficult to locate and excavate. Prof. Albright also mentioned a recent study of Carmel man, which results in dating the Mousterian era at 35,000-40,000 years ago. Coming down to historical times, Prof. Albright gave a resumé of the recently revised Babylonian chronology. He discussed at some length the Proto-Sinaitic inscriptions of Palestine, dated ca. 1650-1550 B.C., which are now the object of study by various scholars.

The language of these inscriptions has been determined to be South Canaanite. Twenty-one or twenty-two characters have been deciphered and work on the inscriptions is going forward. Prof. Albright concluded by discussing the Dead Sea Scrolls, the status of research concerning them, and the great importance of the Scrolls for New Testament studies.

Among the many exhibitions open to those attending the meetings, we must mention the beautifully arranged exhibit of the Ray Winfield Smith Collection of ancient glass, at the Smithsonian Institution. There was a special showing for Institute members.

The 1958 Annual Meeting is to take place in Cincinnati, Ohio.



African Ivory at Minneapolis

A magnificent piece of Bini ivory sculpture, an elephant tusk six feet eight inches in length, is among the recent accessions to the African collections of the Minneapolis Institute of Arts. It is carved with portraits of kings and symbolic and mythological animals, as well as other signs which held solemn traditional meaning for the Bini tribe which created it. The Bini, a Nigerian tribe, were a great African power from the twelfth to the nineteenth century, and during this time developed a splendid capital at Benin. A pair of carved tusks custom-

arily flanked the royal throne or were placed on altars of the king's ancestors. A tusk was supported by being set into a specially cut hole in the top of a bronze head representing a Bini king.

1958 Summer School in Britain

The British Summer School of Archaeology meets each year for a week, and each time is held in a different center. A specific topic or problem on some aspect of the archaeology and early history of Britain is chosen as the theme of a series of lectures, discussions and excursions. The 1958 School, the seventh held to date, will meet in Durham during the week of August 9-16. Its theme will be "The Golden Age of Northumbria." The lectures will cover the great and varied achievements of Northumbria in the period A.D. 650-800: art and manuscripts, architecture and sculpture, letters and learning, poetry, metalwork and religion. Excursions have been arranged to Lindisfarne, Hexham, Jarrow and all the famous sites and monuments of the Anglo-Saxon period within a hundred miles of Durham, including the fine collections in Durham Cathedral itself.

The School offers a forum where all students of British archaeology, professional scholars and amateurs, veterans and beginners, can meet for the discussion of problems and the interchange of views. Lectures are popular in form but authoritative in content. All who are interested should regard themselves as eligible to participate. The School welcomes American members. Full details can be obtained by writing to the Honorary Director, Prof. F. T. Wainwright, Department of Anglo-Saxon Studies, University of St. Andrews, St. Andrews, Scotland.

Bibliographical Digest

The Cultural Center of the French Embassy announces the publication of two more issues of its useful bibliography of French archaeological studies.

Both Part II, *The Near East*, and Part III, *Greece*, were prepared by Pierre Amandry, Professor of Classical Archaeology, University of Strasbourg.

These two issues of the *French Bibliographical Digest* may be obtained free of charge by writing to the Cultural Center, French Embassy, 972 Fifth Avenue, New York 21, N. Y.

Notes from Isthmia

A month's campaign conducted last autumn at the Isthmian Sanctuary of Poseidon, near Corinth, Greece, resulted in an interesting discovery which is described as follows by Professor Oscar Broneer, Director of the excavations:

Prior to the present campaign the only known fortification across the Isthmus was that constructed during the reign of the Emperor Justinian. We were looking for an earlier line of defence and came upon a short stretch of wall of Cyclopean construction in the village of Isthmia, about one kilometer east of the Sanctuary of Poseidon. We have been able to follow this wall toward the west as far as the sanctuary, but beyond this point no certain traces of it have appeared. The two faces of the wall are made of large, undressed stones, and the space between them is filled with smaller stones and earth. In this fill we found many sherds of Late Helladic III B (Mycenaean) pottery, including one almost complete vase. Some sections of the wall have small, buttress-like towers, projecting only 70 cm. from the face of the wall. It seems impossible that this wall can be anything but a trans-Isthmian fortification. If, as the potsherds seem to show, it was constructed in the second half of the thirteenth century B.C., its building would coincide with the beginning of hostile incursions from the north that culminated in the Dorian Invasion.

The large-scale campaign planned for the spring of 1958 will doubtless result in further interesting finds from the sanctuary and its vicinity.

Mycenaean Symposium

The first large-scale gathering of American scholars interested in the Mycenaean language and pertinent problems resulting from the decipherment of the Linear B tablets by the late Michael Ventris took place on December 29, 1957, in Washington, D. C. Arranged as a special session in connection with the Annual Meeting of the American Philological Association, the meeting was presided over by Emmett L. Bennett of Yale University and was attended by more than one hundred people. Prof. Bennett, who had planned the program, made a brief introduction and presented the eight



A section of the newly discovered wall built across the Isthmus of Corinth.

speakers. He pointed out that the variety of papers is evidence not only of the widespread interest in the subject, but also suggests that the Mycenaean world may become a new Classical world with all the disciplines represented.

The first paper, by G. P. Goold of the University of Manitoba, gave a clear exposition of the current state of research on the older Linear A tablets. Contrary to the recent statement in this journal (*ARCHAEOLOGY* 10 [1957] 281-282), Cyrus Gordon's attempt to read these tablets as Semitic Akkadian is not considered definitive either by Goold or by some others present at the session. Although two other scholars (S. Davis of the University of Natal and Maurice Pope of Cape-town) have also proposed a Semitic language, Goold pointed out that only a small number of words were read and these not certainly, owing to the range of ambiguity of the syllabic values. Of twenty words read by Gordon he found only four "attractive," and of these three were the names of vase-shapes which could be loan-words introduced through trade. He apparently favors the more cautious and organic study of the Swedish scholar, Arne Furumark, who has made an exhaustive study of all the Linear A tablets and has applied Ventris' grid methods to them with some success (sixteen product terms including sesame and coriander, about ten vocabulary words and some per-

sonal and place-names). The resulting language seems to have affinities with Asianic languages. Goold's opinion was that we have not yet achieved for Linear A a definitive decipherment comparable to that of Ventris for Linear B; that owing to the paucity of material—about 250 tablets and fragments—and its repetitious character, this will be difficult to achieve, particularly if the language is not closely related to any other known language.

Mabel Lang of Bryn Mawr College in her paper, "A Missing Link," discussed a new fragment of a Linear B tablet found this summer at Pylos which joins and completes the fragmentary tablet Ta709 + 712 of the furniture series, and increases the list of furnishings by several new items: "unroped tubs," "turner's chisel" and, most important, two *e-ka-ra* or "hearths" described respectively as "footed, with edge running around" or as "equipped with a vertical crane, footed and decorated with grooves and pomegranates." Miss Lang compared them with the portable tripod hearths from Knossos and Pylos. She believes that in this tablet we have either a tomb inventory or "objects needed for the investiture of a high official."

Joshua Whatmough of Harvard University, in his "Selected Items of Vocabulary in Mycenaean Greek," was concerned with the linguistic basis of so-called artificial, metrical forms in Homer and their possible origin in an earlier stage of Greek such as we find

in the Linear B tablets; Fred Householder of Indiana University dealt with "Palatalized Consonants in Early Greek" and the way in which these were written on the Mycenaean tablets.

A paper by Michael Jameson of the University of Pennsylvania, entitled "The Mycenaean and Homeric Political Systems," discussed various political terms mentioned in the Pylos tablets (among them *wanax* = "king," *basileus* = regional princely official, and *lawagetas* = "commander") and compared the political system thus reconstructed with that described in the Homeric poems. Jameson's provocative conclusions were that the Pylos tablets reflect the highly complex set-up of the Mycenaean empire at the close of the Bronze Age, whereas Homer reflects the disrupted society of the Viking-like Iron Age; that in the latter the power of the regional princes has greatly increased with the loss of central authority, but that none the less the Homeric poems show some influence of the Mycenaean political system.

Two papers concerned with geographical matters were Alan E. Samuel's "The Size of Places Mentioned in the Pylos Tablets" and William A. McDonald's "Early Greek Attitudes toward Environment as Indicated by their Place-names." Mr. Samuel of Yale University has prepared a corpus of Pylian place-names, the relative importance of each being indicated by the frequency with which it is mentioned and by the size of the assessments in eight basic categories of commodities. Prof. McDonald of the University of Minnesota claimed that Mycenaean, like early Greek, place-names (down to ca. 600 B.C.) are not of a stereotyped nature, since 50% belong in the category of physical description whereas only 6% are named for heroes.

The final paper, by Dr. Jaan Puhvel of the University of Texas, on "Mycenaean Royal Names in the Light of Helladic Religion" was of a historical nature. Puhvel believes that the institution of *wanax*, while introduced by the Indo-European warrior conquest of Greece, took over certain Minoan or Aegean features, just as in the Hittite kingdom there was assimilation of Indo-European elements with Oriental despotism. The extension of the Indo-European gods to the Minoans led to the establishment of a religious function for the *wanax*, who became the de-

ity of the house, as Potnia and Wanassa.

The degree of interest in this session, evinced by the number of people attending and by the variety of papers presented, should be of great encouragement to those Americans who believe that Ventris' decipherment of Linear B as an early form of Greek is one of the great achievements of Classical scholarship in our generation.

SARA A. IMMERWAHR

COWA Survey and Bibliography

The Council for Old World Archaeology, an organization formed to advance the study of the archaeology of Europe, Asia, Africa and Oceania, announces a new service. Two publications are offered—a survey of current archaeological activities and a bibliography (selected and annotated). The Editor-in-Chief is Lauriston Ward. These publications will include every part of the Old World, which has been divided for convenience into twenty-two regions.

All periods will be covered, from the Palaeolithic to the latest historic time in which significant archaeological work has been done. This comprehensive policy will emphasize the organic unity of the progress of man and the close interrelationship of the problems which the archaeologist encounters in trying to trace that progress.

These publications will be of great value not only to archaeologists, historians and scholars in related fields but also to interested laymen. For example, anyone planning a trip to include visits to excavations in progress would find the survey an extremely handy general guide, including information which could not easily be found elsewhere. In the Bibliography there is reading matter pertaining to most of these sites.

A survey of each area will appear every two years. The publications will be issued in groups, five or six areas being covered every six months. The first group, now ready for distribution, includes Central Europe, Eastern Mediterranean, Northwest Africa, Western Asia, Northern Asia and Indonesia.

The subscription price is \$4.00 a year; the price of the publication for a single area is \$1.00. Subscriptions should be sent to: Council for Old World Archaeology, 11 Divinity Avenue, Cambridge 38, Mass.

Tribute to an Editor

For thirty-one years *Antiquity*, *A Quarterly Review of Archaeology* has been presenting to the public—particularly in Britain—the most important developments in archaeology all over the world. This magazine has been the product chiefly of one individual, O. G. S. Crawford, who was both founder and editor. Now, with his sudden death in November 1957, the editorship is to be assumed by Dr. Glyn Daniel, who will be assisted by a group of Advisory Editors, including Prof. Gerhard Bersu, Dr. G. H. S. Bushnell, Prof. M. E. L. Mallowan, Prof. Stuart Piggott and Sir Mortimer Wheeler.

One of the distinctive features of *Antiquity* has been the "Editorial Notes." We wish to quote here, as a tribute to Crawford's unique achievement, a few passages which express his purpose and his philosophy. First, from the issue of December 1936, which rounded out ten years of publication:

"What I had in mind was to found a journal which would raise the general status of archaeology, and would popularize its achievements without vulgarizing them—in a word, which would take a place equivalent (both in form and content) to that already occupied by the monthlies and quarterlies in regard to public affairs generally. The main outlines of the evolution of human culture are now firmly established, and it was time that this knowledge should become diffused. But it seemed nobody's business to diffuse it. Here was a demand without a supply. I decided to meet it."

In the issue of March 1950 Crawford set down one of his basic concepts:

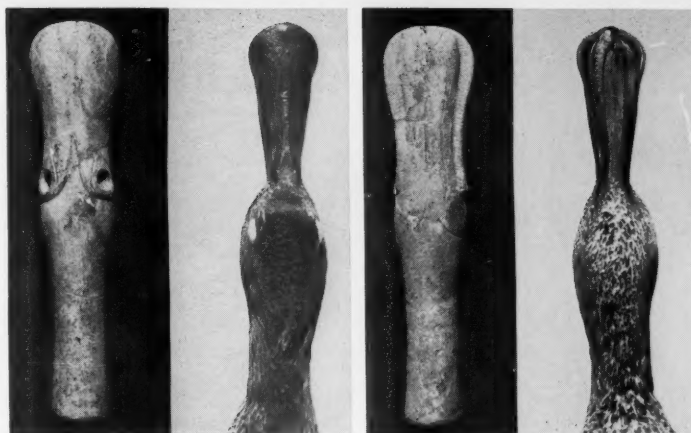
"What is the point of view which ANTIQUITY represents? In terms of individuals, it represents the generation which between the wars built modern archaeology on the foundations laid by Haverfield and before him by Pitt-Rivers. In terms of culture—for archaeology and anthropology themselves are of course culture-traits—ANTIQUITY . . . belongs to the school of Darwin, Tylor, Morgan and Pitt-Rivers, and regards art and literature as elements of culture to be studied as such, not as determinants thereof. We believe that this point of view can be clarified and made acceptable, and this not by preaching . . . but by the

advancement and diffusion of knowledge. We believe that all the facts of human history vindicate it. We also believe that some facts are more important than others and that we can recognize them. In archaeology—and in all other branches of science—we regard the invention of a new technique as (in outstanding examples) more important than many discoveries regarded as sensational. The discovery of a means of dating wood and other organic substances by the Carbon 14 method (as it is to be called) is regarded as far more important than that of the Hebrew Scrolls. That principle is recognized in modern affairs; the invention of broadcasting by radio is obviously of more importance than, say, the foundation of a daily newspaper. . . ."

One of Crawford's more recent editorials (September 1953) expressed his faith in the future:

"The trite statement that we live in exciting times may be understood in various ways. Most people would understand it as looking forwards to a holocaust, and the prospect, though no doubt exciting, is apt to be depressing and to encourage a 'couldn't-care-less' attitude. In this context it refers to discoveries about Man's past, not to his future prospects. The best advice to those suffering from the prevalent epidemic of pessimism is to stop looking forwards, for after all 'it may never happen,' and to look backwards at what actually did happen when the

civilization we talk so much about was young and full of promise. Archaeologists of course have their heads permanently fixed in this position, and it is a fact that amongst them it is very rare to find one who 'couldn't-care-less.' The excitement of new discoveries crowding one upon another fires the imagination and gives a zest to life. One may be momentarily depressed by the prospect of annihilation, but one realizes that, even if 'it' should happen, most of the new knowledge (and much beside) will survive into a new era. Archaeologists deal wholesale in time, and there is a lot of it available before the sun grows cold."



Front and back views of duck pipe from Welcome mound, with a shoveler duck's head shown for comparison. Photographs courtesy Smithsonian Institution.

Excavation at Welcome Mound

A prehistoric burial mound of the Adena people at Martinsville, West Virginia, has recently been excavated under the direction of Frank M. Setzler of the Smithsonian Institution. The mound was located sixteen miles south of one of the largest Indian mounds in the United States—the Grave Creek mound at Moundsville, W. Va. Twenty feet high and 110 feet in diameter, the Welcome mound was situated on the third terrace above the Ohio River. The mound was doomed to annihilation because of the tremendous expansion program in this rapidly growing industrial area of West Virginia,

*Highlights of
the Summer issue of*

ARCHAEOLOGY

A SCANDINAVIAN COMMUNITY IN PEACE AND WAR

by Ole Klindt-Jensen

TWO CARVED LINTELS FROM TIKAL

by William R. Coe

TECHNOLOGICAL RESEARCH ON ANCIENT GLASS

by Ray Winfield Smith

FOUR ROMAN GARLAND SARCOPHAGI IN AMERICA

by J. B. Ward Perkins

between Wheeling and Huntington.

The excavation was undertaken on the initiative of the Columbia-Southern Chemical Corporation, which volunteered to supply the labor, equipment, laboratory facilities and an engineer if the Smithsonian Institution would send an archaeologist to direct the excavation. The offer of collaboration was accepted, and Mr. Setzler excavated from October 7th to November 22nd, 1957.

Three adult human skeletons were found in the mound. The bodies were lying on and covered with several layers of what appeared to be oak bark. The acidity developed by these bark coverings rapidly decomposed all perishable objects buried with the dead. Even the bones of the skeletons were hardly more than imprints in the earth. A large canine tooth, possibly of a wolf, was found in the mouth cavity of the male skeleton. This could indicate that he was buried wearing a wolf mask; a mask of this type has been found in one of the Ohio Adena mounds. No non-perishable objects, such as stone, bone or shell were associated with the dead.

One of the most remarkable specimens uncovered was a carved effigy pipe. The normal pipe of the Adena people was a straight tube, but in this case the prehistoric sculptor carved the head and neck of a shoveler duck with an expanding bill, eyes, and slits for nostrils. The most diagnostic trait is a series of fine incised lines on the under side of the bill to represent the lamellae so characteristic of shoveler ducks. This pipe is the only bird effigy recorded from an Adena mound, and is the third carved tubular pipe known from this cultural horizon. It is made from Ohio limestone, a type of mate-

rial relatively soft and easy to carve when freshly dug from the ground. After exposure to the air the stone becomes hard and brittle.

The materials recovered from the mound will be studied in detail before a full report can be made and the finds correlated with what is already known of the archaeology of the region. Particularly noteworthy is the cooperation between a large commercial enterprise and a scientific institution.

Two New AIA Societies

The latest additions to the roster of member societies of the ARCHAEOLOGICAL INSTITUTE OF AMERICA are those at Columbus, Ohio, and at Ann Arbor, Michigan. The Columbus Society was formed through the efforts of members of Ohio State University. At the time of going to press the list of officers was not available, but the society began with thirty members and good prospects of more. The forty-seventh society, the Ann Arbor Society, started with forty-one members. The officers are as follows: President, Prof. Arthur E. R. Boak; Vice-President, Prof. Clark Hopkins; Secretary, Prof. George E. Mendenhall; Treasurer, Mr. John A. Hanson.

Etruscan Exhibit in Baltimore

The Etruscan exhibition at the Walters Art Gallery which opened on March 16, 1958, will continue on view through May 4. With the exception of a recent exhibit in Detroit, this is the first loan exhibition of Etruscan art in America. Objects have been lent by thirty or more museums and private collectors in the United States and



Canada. These are supplemented from the permanent collections of the Gallery, which has some prime specimens of this still little known art acquired by Mr. Walters chiefly through his purchase of the Massarenti Collection in Rome in 1902.

The exhibit includes over one hundred objects, dating from the ninth through the second century B.C. They have been chosen as examples from the best periods of the crafts in which the Etruscan artists excelled. It is intended to emphasize Etruscan originality rather than the obvious but partial dependence on Greek prototypes. Illustrated here is a black-figured amphora of about 520 B.C. with a frieze of eight satyrs. It has been attributed by J. D. Beazley to the Siren painter.

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AAA Meeting

The annual meetings of the American Anthropological Association, held at Chicago December 27-30, 1957, had several sessions specifically devoted to archaeology, and also included a number of general papers of interest to archaeologists. The most spectacular new materials discussed were those of the architectural complex at Chiapa de Corzo in Chiapas, Mexico (presented by Keith A. Dixon, New World Archaeological Foundation) and the Pre-Spanish wall-paintings from Pottery Mound, New Mexico (by Frank G. Hibben, University of New Mexico).

A variety of papers, and discussion in the corridors, tended to focus about two subjects: the radioactive carbon dating situation vs. archaeological stratigraphy, and the cultural mechanics of transition from levels of the "Mesolithic" or "Archaic" to those of "Neolithic" or "Formative". Irving Rouse of Yale University (with José Cruxent of Caracas) presented evidence that the assumed archaeological stratigraphy of the Caribbean area had itself been in error, and radiocarbon dating forced the necessary re-evaluation. James Griffin of the University of Michigan showed that as the numbers of radiocarbon dates bearing on the matter of the chronological position of the Hopewell culture and its interrelationships have increased, certain extreme (and very unlikely) Carbon 14 dates must simply be set aside.

The interest in the consideration of various aspects of specialized food-collecting, and of how different types of food-production might have followed these, was stimulated in part by some very general papers, e.g., G. P. Murdock (Yale University) on culture areas in Africa and David French (Reed College) on aboriginal control of huckleberries, and in part by archaeological papers, e.g. Melvin Fowler (Illinois State Museum) on beginnings of plant cultivation in the Mississippi Valley and Creighton Gabel (Northwestern University) on European Mesolithic relationships.

There were several symposia which were particularly stimulating from an archaeological point of view: on migrations in New World culture history, on the evolution of man's capacity for culture, and on culture area analysis.

ROBERT J. BRAIDWOOD

Summer Courses in Fieldwork

The University of Birmingham, England, announces a series of field courses in archaeology to be held during the summer of 1958 at Preston Montford Field Centre near Shrewsbury, Shropshire. There will be six sessions of one or two weeks each, as follows: The Anglo-Danish Struggle (Director, F. T. Wainwright); Romano-British Archaeology: Excavation Techniques (three sessions), directed by Graham Webster; Roman Occupation of Wales and the Border (Director, D. R. Dudley); The Identification and Survey of Earthworks (Director, A. L. F. Rivet). For further information write to Department of Extra-Mural Studies, The University, Birmingham 3, England.

ESAF Annual Meeting

The Annual Meeting of the Eastern States Archaeological Federation was held in Baltimore Saturday and Sunday, November 9th and 10th. Seventeen papers were given at three sessions, and after the business meeting there were "Workshop Panel Discussions on Local Society Problems." At the dinner on Saturday evening Dr. John M. Corbett spoke on "Archeology and the National Park Service."

With the exception of one paper on Alaskan archaeology and another on

the dentition of the Huron, all the papers referred to the archaeology of the eastern states. William A. Ritchie traced "The Development of Aboriginal Settlement Patterns in the Northeast" from pre-agricultural hunting peoples with a culture like that of the present Indians farther north to agricultural peoples with village life and class organization. T. Latimer Ford spoke of "Adena Traits in Maryland," referring to several sites on the Chesapeake Bay in which a complex of objects almost identical with those characteristic of the Adena culture of the Ohio River valley has been found. Chronologically, Maryland Adena seems a little later than that inland.

"The Changing Environment of the Chesapeake Bay Region in Deglacial Times" was discussed by George F. Carter. There was probably no bay in 8000 B.C. At the height of the glacial period the sea level was lowered by 200-500 feet. Shell middens agree with the present distribution of oysters, thus indicating their relative recency. No middens of the glacial period need be sought in the Bay region, nor anywhere on the east coast except in Florida; elsewhere they are now far out at sea. Most of the other papers were accounts of archaeological excavations and researches of local interest.

J. ALDEN MASON





REVIEWS OF RECENT BOOKS

EXCAVATIONS AT GÖZLÜ KULE, TARSUS. Volume II: From the Neolithic through the Bronze Age, by HETTY GOLDMAN. With chapters by MACHTELD J. MELLINK and I. J. GELB and an Appendix by FREDERICK R. MATSON. Text volume: vii, 373 pages; Plate volume: 458 figures, 26 plans. Princeton University Press, Princeton 1956 \$36.00

Accurate, detailed and lucid description, good illustrations, complete documentation and a full study of parallels with the known neighboring cultures are the prerequisites for the publication of an excavated site. These requirements are met in a masterful way by Professor Hetty Goldman; her publication can serve as a model.

In this volume are described the prehistoric remains as revealed by the author's excavations of 1934-1939, 1947 and 1948. The discussion of the successive building levels is followed by a chapter on chronology and by two excellent chapters on pottery. (The chapter on Neolithic and Chalcolithic pottery is by Machteld J. Mellink.) Two chapters on seals, one by I. J.

Gelb, are followed by discussions of stone, metal, bone, clay and miscellaneous objects. A final chapter sums up the conclusions reached and sketches the history of the site. In an Appendix Frederick R. Matson offers a study on "Techniques of the Early Bronze Age Pottery at Tarsus."

Prehistoric Tarsus consists of villages of the Neolithic and Bronze Ages. Of the earlier remains those belonging to the Early Bronze II village are best preserved (ca. 2750-ca. 2400 B.C.). That village, surrounded by a fortification wall, received few outside influences and its culture seems indigenous and independent. It was destroyed by fire but it was hastily rebuilt and given an extemporized fortification wall. The second village was also completely destroyed at the end of the Early Bronze II period, apparently by invaders who then lived on the site during the Early Bronze III period (ca. 2400-ca. 2100 B.C.). Their houses, their pottery and the miscellaneous articles they left prove that the invaders had started from northwest Asia

Minor, perhaps the region of Troy.

Seismic disturbances gradually weakened the Early Bronze III village and laid it open to invaders from North Syria. The coming of these new people ushered in the Middle Bronze Age (ca. 2100-ca. 1650 B.C.) and a period of rather disturbed existence whose culture carried on without a break into the Late Bronze I Age. Gradually Hittite influence appeared, and by Late Bronze IIa times (ca. 1450-ca. 1225 B.C.) the Hittites were in control. The Hittite settlement was destroyed by a group of the "Sea People" at the beginning of Late Bronze IIb; they settled on the site and imported Granary style pottery, perhaps from Mycenae. The remains of this Mycenaean village, never very prosperous, gradually degenerated until it reached a very low standard of subsistence at the beginning of the Iron Age.

The history of the site in prehistoric times has been sketched in a masterful way. The work leaves little to be desired. The reader may miss a list of the objects found in each of the houses described. As it is, their description is scattered, and a complete estimate of the contents of a house cannot be obtained. The dates of the various periods are well calculated, but perhaps it should have been stated that the date for the beginning of the Late Bronze IIb period, of the coming of the "Sea People," the Mycenaeans (ca. 1225 B.C.), is not based upon evidence from the site but on the dates suggested by Wace and Furumark for the Granary wares of Mycenae. I still prefer Miss Goldman's earlier suggestion that the destroyers of the Hittite settlement were part of the contingent of the "Sea People" returning from their unsuccessful attempt to attack Egypt. Their defeat occurred ca. 1190 B.C.; after that date the "Sea People," the Mycenaeans, established themselves on the site. Shortly afterwards they must have re-established connections with

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Volume I, 1: Karl Schefold on the Marine Images of Cretan Art; Sir John Beazley on a Hydria by the Kleophrades Painter; Pierre Amandry on Achaemenid Jewellery; Ernest Nash on Domitian's Imperial Palace on the Palatine. 30 pages, 16 plates (quarto size).

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problems presented are a refreshing change from the American and English data appearing in recent works on methodology. On the other hand, the general character of the topics discussed is reassuringly familiar; it is apparent that sound basic techniques of observation and inference have no geographical limitations. I read with sympathetic interest the denunciations of wastage of archaeological resources through casual or malicious depredations, slovenly curatorial practices and unreasonably delayed or inadequate publication. De Laet ranks continental archaeological evidence as distinctly less reliable than that from Great Britain and Scandinavia.

The methods of reconnaissance, excavation, dating and interpretation advocated do not require any special summary. Perhaps the most noticeable contrast with American practice is the absence of any consideration of quantitative seriation or related ideas. However, this absence is certainly not the result of any hostility toward technical innovations or resistance to systematic procedures. De Laet has no patience with the precious point of view which deplores the "encroachment of technique upon thought," arguing rather that genuine technical advances provide new data to think about. There are some terminological differences to guard against: thus "community" and "clan" are used in an intentionally vague sense. A few ideas should be presented more lucidly: for example, it is not at all clear to me how palynological dating is of any direct help in reconstructing the internal structure of a Bronze Age tumulus, nor do I understand from the discussion in what manner distribution studies yield relative chronology. Finally, De Laet points out with some force that the assumption of similar "mental powers" for the "primitive mind" at all times and places is unprovable, but he fails to note that the converse is equally incapable of proof and has the additional disadvantage of producing hypotheses about cultural differences which have no logical implications.

ALBERT C. SPAULDING
University of Michigan

ANCIENT MYCENAE, The Capital City of Agamemnon, by GEORGE E. MYLONAS. ix, 201 pages, 87 figures. Princeton University Press, Princeton 1957 (The Page-Barbour Lectures for 1955 at the University of Virginia) \$7.50

Both in 1952 and in 1955 *ARCHAEOLOGY* had the good fortune to carry accounts of the Grave Circle discovered in 1951 outside the citadel at Mycenae. In his new book Professor Mylonas provides both a fuller report on the excavation of this Circle (in which he took an active part) and a most interesting discussion of modifications suggested by recent excavation and research to the accepted dating and interpretation of other major monuments of Mycenae.

Grave Circle B, which dates from the second half of the Middle Helladic

period, enclosed twenty-four graves, of which fourteen are shaft graves like those of Schliemann's Circle A. The others are mainly small cists, but Grave P, the latest in date (Late Helladic II A), is a built chamber without parallel on the Greek mainland but comparable to the built graves of the Mycenaean settlements at Ras Shamra and Minet-el-Beida in Syria. This unique grave was emptied in antiquity, but the shaft graves were nearly all intact. They were, on the whole, less richly furnished than those of Circle A, but the finds included several fine weapons and a number of gold, silver and bronze vessels; gold ornaments were found in several graves, and in one was a beautiful vase and ornaments of rock crystal. The pottery is of great variety and interest. Whether or not these were royal graves, they were certainly the graves of some leading families of Mycenae.

The book includes a general description of Mycenae and its history, combined with fresh and thought-provoking comment. It places considerable, perhaps excessive, reliance on Greek legend, seeking—always ingeniously—to connect the monuments of Mycenae with the great figures of her heroic past. Professor Mylonas identifies two main eras of construction, the former (connected with Perseus) in the middle of the fourteenth century B.C. when the acropolis fortifications and the palace were first completed, the latter (connected with Atreus) a century later when the palace was altered, the Lion Gate and the curving western wall were added to the fortifications, the ring of slabs was constructed around Grave Circle A, and the two great tholos tombs—the Treasury of Atreus and the Tomb of Clytemnestra—were built. This chronological scheme will not be universally accepted. Less controversial and particularly convincing is the suggestion that the so-called Throne Room in the palace was in fact a guest chamber; additional support for this came in 1955 when a place for a throne was discovered in the porch of the great megaron.

Special interest attaches to the chapters on the tombs and burial customs of Mycenae. Excavation of Circle B by modern methods has cleared up much that was obscure about Circle A and has cast fresh light on Mycenaean beliefs and funeral practices. Most im-

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portant is Mylonas' conclusion that there was no cult of the dead in Middle or Late Helladic times. Shaft graves, tholos and chamber tombs alike were family graves, and in all of them consideration was shown only for the latest burial; earlier skeletons were brushed aside and their grave gifts scattered or removed; the latter were intended to sustain and comfort the dead only during the journey to the other world, the time taken for the dissolution of the flesh. The female figurines found in many Late Helladic tombs are explained as divine nurses, buried with young children to guide and succor them on their long journey. The continuity in practice between Middle and Late Helladic burials is rightly stressed; the suggestion that the tholos tomb was evolved from the grave circle (itself traceable back to Early Helladic times) merits prolonged examination.

The book is pleasingly produced, with generous illustrations of the new finds. The language is occasionally obscure and there are a few misprints, the only serious one being 486 B.C. for 468 B.C. on pages 17 and 23.

HELEN THOMAS WATERHOUSE
Birmingham, England

MODELS OF DAILY LIFE IN ANCIENT EGYPT FROM THE TOMB OF MEKET-RE⁴ AT THEBES, by H. E. WINLOCK. xv, 106 pages, 86 plates and frontispiece. Harvard University Press for the Metropolitan Museum of Art, Cambridge 1955 (Publications of the Metropolitan Museum of Art Egyptian Expedition, Vol. 18) \$7.50

A great nobleman of the Eleventh Dynasty, Meket-Re, prepared for his tomb twenty-four painted wooden models, which were discovered in 1920 by the Egyptian Expedition of the Metropolitan Museum of Art. Such models developed when small statues of individual servants, often deposited in the tombs of their masters in the Fifth and Sixth Dynasties, were combined onto one baseboard to form a scene. They have a rather brief range. Appearing in a troubled time of rival dynasties, the First Intermediate Period (ca. 2258-2052 B.C.), they show the various occupations on which the life and comfort of landowners depended, and substitute for the many scenes depicted on tomb walls in more stable periods of

Egyptian history. Around 2052 B.C. the reunification of Egypt by a king of the Eleventh Dynasty ended the First Intermediate Period, but some of its typical features persisted, including the use of models. Those of Meket-Re, made around 2000 B.C., are among the last of their kind and also, coming as they do from an age of renewed vigor, among the finest.

Winlock's book, prepared for publication after his death by Charlotte R. Clark, presents a comprehensive account and catalogue of the Meket-Re models, which he divided into those representing the estate, the offering bearers and the boats. They unroll before us typical occurrences in the life of a country estate and its owner: herdsmen driving the cattle for inspection past the canopied platform sheltering their master, boat voyages with Meket-Re entertained by musicians in front of the cabin where the steward squats beside bed and traveling lockers, fishing boats trailing nets, the work of butchers, bakers, brewers, carpenters and weavers. The wealth of information yielded by the models is frequently of explicit clarity because of their three-dimensional character.

Excellent plates of line drawings give details of the models, but the photographic plates are disappointing. They are hazy, sometimes so much so that many features are lost. Frequently darker elements fuse together and lighter portions tend to disappear into the background, as (to give one example) in the case of the incense burner held by a man on Plate 50. Since the original photographs were made by Harry Burton, the shortcomings of the plates presumably result from the quality of the offset reproduction on matt paper. Whatever the

cause, after striving in vain to see on the plates details vividly described by Winlock, one becomes convinced that no budgetary pressures can excuse the presentation of such magnificent material in such inadequate reproduction. But it would be unjust to the work of Winlock and his collaborators to end on a note of complaint. This volume is a major addition to Egyptological literature. Winlock's lucid exposition of the Meket-Re models recreates for us many aspects of Egyptian life in the twenty-first century B.C.

HELENE J. KANTOR

*Oriental Institute
University of Chicago*

THE TEMPLE OF JERUSALEM, by ANDRÉ PARROT. Translated by B. E. HOOKE. 112 pages, 25 figures, 7 plates. Philosophical Library, New York 1955 (Studies in Biblical Archaeology, No. 5) \$2.75

Readers of *ARCHAEOLOGY* have been introduced to *Studies in Biblical Archaeology* by Professor Wright in the Summer 1957 issue, page 146, as "excellent books, models of their type, which deserve an excellent sale in this country." In this volume of the series Professor Parrot, the editor, has written concisely the most recent and, archaeologically, the most fully documented account of the Jewish temples of biblical Jerusalem. The "vision" Temple of Ezekiel, the Second Temple and the Haram esh-Sherif are given brief chapters. The longer treatment of Herod's Temple is enriched by use of the second volume of Père L. H. Vincent's *Jérusalem de l'Ancien Testament* (Paris 1956).

"The Temple of Solomon" is the longest chapter, the evidence for it be-

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ing more abundant. Renan's suggestion that Solomon's Temple was "a domestic Temple, a chapel of the palace" is here upheld with reference to recent cultural data of Mesopotamian and Near Eastern archaeology. Parrot holds that reconstruction of Solomon's Temple "is still, in certain respects, a matter of conjecture" (page 23) and states that the battlemented walls of the Stevens drawings (*Biblical Archaeologist* 18 [1955] 42) "are very doubtful" (page 25, note 2). Parrot's verbal description is usually convincing even though he is not clear whether the Altar of Burnt Offering was "very probably on" the Rock or "more probably beside it." He is inconclusive, too, as to the appearance of the Ark and the location of the entrance to the side chambers. No evidence is given why the Temple ceiling was a cedar framework "held in place by slings," or why "Solomon had to allow a certain liberty to his foreign craftsmen who introduced their own ideas of decoration as well as their native architecture." Certain of these expository deficiencies may be traceable to the translation. In such a general work minor features may be overlooked in appreciation of the worth of the whole.

The bibliography is weighted with European source materials and includes the latest "specialist studies." The illustrations in the main are well chosen and reproduced. The reader may be forewarned that Figure XX does not illustrate the point made on

page 97, note 1 and that Figure VI is printed upside down. It is not any more apparent to the reviewer than it was to Dr. Wright why a book, even as good a small book as *The Temple of Jerusalem*, when published in England to sell at \$1.05, should be priced with a U.S.A. imprint at \$2.75.

PAUL LESLIE GARBER
Agnes Scott College

EASTER ISLAND, A Stone-Age Civilization of the Pacific, by ALFRED MÉTRAUX. Translated by MICHAEL BULLOCK. 249 pages, 6 figures, 16 plates. Oxford University Press, New York 1957 \$5.00

With its remarkable stone sculptures and lying as it does as the remotest eastern outpost of Polynesia—halfway to the coast of America—Easter Island is of extraordinary interest concerning the migrations of early or primitive man. Its history has been given considerable serious study, but even more it has been subjected to various degrees of less bridled speculation, often reaching the realms of the fantastic.

One is free, of course, to choose the kind of literature he wants about Easter Island, but any serious student must go to the basic work of Alfred Métraux. After a lengthy field season on the island in 1934, Métraux published his well-known *Ethnology of Easter Island* (Bernice P. Bishop Museum, Honolulu, *Bulletin* 160 [1940]). This included the results of his inves-

tigation of the pitifully meager fragments of the island's culture that remained or were remembered, plus a thorough review of the literature.

The present volume is a convenient summary of that work, taken largely from an earlier French edition but brought up to date. There is discussion of Thor Heyerdahl's theories on the populating of Easter Island, thought by the author to be erroneous. He sees Easter Island culture as an outlier of the general Polynesian culture, with certain specializations probably resulting from local conditions and maintained by Easter's remoteness from the other island centers.

While Métraux attempts to discount the strange and exotic about Easter Island, its special fascination will remain in the minds of most readers. This, along with Métraux' authoritative knowledge and his easy style of writing, makes the book a rewarding experience for anyone interested in the history of man and his culture.

GORDON F. EKHOLM
American Museum of
Natural History

ROME BEYOND THE IMPERIAL FRONTIERS, by Sir MORTIMER WHEELER. xii, 192 pages, 19 text figures, 38 plates, inset map. Philosophical Library, New York, 1955 \$7.50

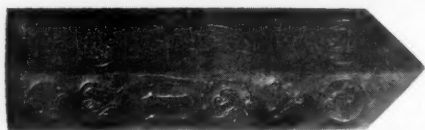
224 pages, 20 text figures, 32 plates. Penguin Books, Baltimore 1955 \$0.85

Sir Mortimer, who is both a learned and a lively man, has offered us a book which combines the science and the romance of archaeology. The reader who has a taste for highly romanticized archaeology may find it too sober for his taste, since the author has declined to take the final step of spinning purely imaginary stories. Such a reader, however, may easily spin for himself some spicy tales; Sir Mortimer has offered material for half a dozen novels or stories of traders, soldiers or diplomats on the German, the African or the Asian frontier.

Scientific requirements are well met by the care with which statements are made, the frequent references to unsolved difficulties and the warnings about drawing inferences. Yet interesting implications of the facts so austere gathered are constantly suggested.

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pire, have of course been carefully investigated and discussed by scholars. Their work has helped to make it plain that the Germans, even though referred to by the Romans as barbarians, were not savages. They had a taste for fine things, and it was possible to trade with them on reasonable terms. In this book we find a careful review of the goods which were traded (we know little about what the Germans offered the Romans), of the main trade routes, the places and circumstances in which discoveries have been made, and the possibilities of accurate dating.

If a historian might make a suggestion, it would be that we ought to remember that there were invisible exports from the Empire, in the cultural sense. The Germans learned constantly from the Romans; the historians tell us of their borrowings in the military and governmental spheres. We must also remember that they refused to borrow some things from the Romans. Although they had cities of a sort, they never cared for city life in the highest Graeco-Roman sense, nor for the high intellectual tradition, nor for the Graeco-Roman loyalty to an impersonal government and an impersonal system of law.

The African frontier has yielded less of interest, partly because of the scarcity of population there and partly because of the scarcity of investigations along the coast of East Africa. Here Sir Mortimer offers us results of

his own work in a new field of tremendous interest. Ivory, incense, pepper and silk were the chief articles of trade. Part of the trade seems to have been highly organized and part rather casual. Systematic investigation of this great area is only in its infancy compared with that of areas in the West; we may hope that continuing work will yield a rich harvest.

RICHARD M. HAYWOOD

*University College
New York University*

NINEVEH AND THE OLD TESTAMENT, by ANDRÉ PARROT. Translated by B. E. HOOKE. 96 pages, 20 figures, 5 plates. Philosophical Library, New York 1955 (Studies in Biblical Archaeology, No. 3) \$2.75

In this book the distinguished French archaeologist, M. Parrot, employs his unusual talents in non-technical writing to one of ancient history's most fascinating stories, that of Nineveh, capital of the Assyrian empire. After an introductory chapter on the history of the excavations at Nineveh, the major part of the small volume is given over to the story of the relations between the Assyrian kings and Palestine, employing not only the well known sources of information in the Bible and old Assyrian annals, but also new data recently unearthed in Assyria by British expeditions. The result is an excellent archaeological and historical narrative that is not only up to date

but a pleasure to read. One regrets that space did not permit the author to provide a more detailed summary of the architecture, libraries and small finds in the city.

G. ERNEST WRIGHT

McCormick Theological Seminary

CATALOGUE OF GREEK AND ROMAN ANTIQUITIES IN THE DUMBARTON OAKS COLLECTION, by GISELA M. A. RICHTER. 77 pages, 27 plates. Harvard University Press, Cambridge 1956 \$5.00

A series of catalogues of the collections at Dumbarton Oaks begins auspiciously with the presentation of Classical material and a few miscellaneous pieces which belong more logically with this group than with other categories. The forty-seven objects, most of them small in scale, form a diverse company. Variety in periods represented is multiplied by variety in medium and doubled by the presence of the "major" and "minor" arts; the result is an interesting if interrupted sweep over more than a millennium of artistic expression. The collection, however, is not presented historically, but categorically by the materials employed. Through this arbitrary order each piece assumes greater individuality than it would through a scheme which implies subordination of parts to a whole. But individuality would be present whatever the approach. Some of the pieces are old and familiar friends, some have been the subject of extensive publication, some have been hitherto little known, and still others are here making their formal debut.

For those who have not been able to visit the collection in its pleasant surroundings in Washington, D. C., here is the opportunity to browse among the antiquities with the best of guidance. For those acquainted with the museum, here is the chance to refresh the memory. Achaemenian reliefs, mosaics from Antioch, bronze statuettes, metal utensils, sculpture, cameos and gems invite contemplation and perusal. Miss Richter gives a detailed description of each piece and a thorough discussion. In certain cases the discussion becomes an admirable précis of variant theories. The pages written on the portrait head of "Menander" type are the outstanding example of a useful summary weighing the pros and cons of a thorny problem of identification. (Here the

reviewer wishes to mention that the face on the Stroganoff relief, now in Princeton, is too extensively restored to be of help.) There is an appendix by Marie Farnsworth reporting on a technical examination of the blue glass cameo representing Augustus and Roma. Each piece in the catalogue is illustrated, in some instances by more than one view, and occasionally supplemented by comparative material. Contents, reproductions and format make a book which is attractive to eye and mind alike, which should be a source of pride to Dumbarton Oaks and Harvard University, and which adds a star to the author's well studded crown.

FRANCES FOLLIN JONES

*The Art Museum
Princeton University*

MEDIEVAL AMERICAN ART, Masterpieces of the New World before Columbus, by PAL KELEMEN. xxii, 437 pages, 307 plates, 1 chart, 1 map. Macmillan Company, New York 1956 \$15.00

No new encomiums need to be added to those such as "easily the most beautiful book of the year" that were ac-

corded to this well known work when it was first published in 1943 as a two-volume edition at double the present price. It astonished booksellers by running through three editions in four years, and it was praised equally by artists and by professional archaeologists. Few of the latter would take exception to the publisher's claim that "it is still the only one in any language which surveys the entire panorama of all the artistically important cultures of pre-Columbian America." This one-volume edition contains everything that was in the original edition plus two new plates and a commentary on the most important discoveries since 1943. The excellent full-page plates contain nearly a thousand illustrations of the finest art products of the pre-conquest American Indians from the southwestern United States to Chile. They are divided into the categories of Architecture, Sculpture, Pottery, Weaving, Metal-work, Jade and Other Semi-precious Stones, Murals and Manuscripts, Miscellaneous Applied Arts, and Facets of Daily Life. In the additional chapters on Art History and "Medieval American Art," "Historical Approach"

and "Evolution or Influence" Kelemen summarizes his opinions as an artist and the results of several decades of contact with American archaeologists and their scientific publications. On only a few minor points—such as the results of recent Carbon 14 determinations of dates—do the latter differ slightly from the best modern archaeological consensus.

J. ALDEN MASON

BRIEF NOTICES

EXCAVATIONS AT SOBA, by P. L. SHIN-NIE, with a Section on the Glass by D. B. HARDEN. 84 pages, 47 figures, 30 plates, 1 map. Sudan Antiquities Service, Khartoum 1955 (Occasional Papers, No. 3) 10s.

As an antidote to the notion that archaeology is "romantic" we quote from the foreword to this careful publication of excavations at a remote site in the Sudan which was once the capital of the mediaeval kingdom of Alwah:

"... the short cool season is normally spent in the field, and ... all the work of studying, sorting, and drawing materials and the writing of



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Terracotta figurine of a maiden unbinding her sandal. From Apulia. Hellenistic. Height 17 cm.

reports has to be done in the hot weather when on occasion the shade temperature rises to 117° and seldom falls below 105°. . . . The draughtsman has even greater difficulties than the writer, sweat pours on to the paper, the paper itself becomes brittle in the dryness and breaks; if tracing linen is used instead, cockroaches eat the size. Indian ink dries on the pen between the bottle and the drawing board. If advantage is taken of the cooler evenings, swarms of *nimiti*, a small fly, clog the ink and settle on the pen nib. . . ."

The published finds include architecture, pottery, implements and—most interesting—a large group of glass vessels.

THE AMERICAN INDIAN IN NORTH CAROLINA, by DOUGLAS L. RIGHTS. Second edition. xx, 298 pages, 110 plates, 1 map. John F. Blair, Winston-Salem, N. C. 1957 \$6.00

A compendium of the available information on the subject. The historical records from De Soto on are digested and quoted, and a sketch of each Indian group given, the Tuscarora, Catawba and Cherokee receiving especially full treatment. Although a good many of the plates are devoted

to archaeological subjects—sites, excavations and groups of artifacts—the treatment of that topic is limited to a three-page chapter on "Archaeology," noting the most important excavations in the state, and to a longer final chapter (pages 264-277) on "Indian Antiquities" in which the various types of objects are described rather briefly.

CERAMICS FOR THE ARTIST POTTER, by F. H. NORTON. xi, 320 pages, numerous text figures and tables. Addison-Wesley Publishing Co., Cambridge, Massachusetts 1956 \$10.00

This handbook, intended for the use of present-day potters, is also valuable for the student of ancient ceramics, since methods of production have changed very little. The numerous clear illustrations make the book particularly useful.

DARK-AGE BRITAIN. Studies Presented to E. T. Leeds with a Bibliography of his Works, edited by D. B. HARDEN. xxii, 270 pages, 58 figures, 36 plates, frontispiece. Methuen & Co., London 1956 63s.

Students and friends of Edward Thurlow Leeds, outstanding British scholar of the Dark Ages, have

brought together a group of essays on the art and archaeology of late Roman and Celtic, pagan Saxon, and Christian Saxon and Viking Britain. Among these essays, to note a few, are studies of Romano-British pottery, Irish enamels, Anglo-Saxon settlement, and late Anglo-Saxon trade with the continent, all of which interested Leeds. With his death in 1955, this book has become a fitting memorial.

A BIBLIOGRAPHY OF APPLIED NUMISMATICS, by CORNELIUS C. VERMEULE, compiler. viii, 172 pages. Spink & Son, London 1956

An extremely useful compilation of publications in Classical archaeology and the fine arts which utilize numismatic material. Over fourteen hundred entries are grouped in four major sections: I. Archaeology and Art History; II. Iconography; III. Geography, Topography and Architecture; IV. Related Works in the Fields of History, Politics and Religion.

ABSTRACT ART BEFORE COLUMBUS, by DORE ASHTON. Preface by ANDRÉ EMMERICH; photographs by LEE BOLTIN. 48 pages, 31 with photographs. André Emmerich Gallery, New York 1957 \$2.50

An art album of non-pictorial objects of stone and pottery from Mexico, Ohio and Arizona. The Mexican objects are mainly from Tlatilco, Vera Cruz, Colima and Guerrero. The text is written from an aesthetic and art-history point of view, but the archaeological data are accurate. An excellent choice of interesting objects, beautifully presented.

THE WESTMINSTER HISTORICAL ATLAS TO THE BIBLE. Revised edition. Edited by GEORGE ERNEST WRIGHT and FLOYD VIVIAN FILSON, with an introductory article by WILLIAM FOXWELL ALBRIGHT. 130 pages, 88 figures, 18 plates of maps. The Westminster Press, Philadelphia 1956 \$7.50

The revised edition of this useful aid to the study of the Bible incorporates material on new discoveries such as the Dead Sea scrolls, unknown when the first edition was published in 1945, and fuller chronological data, with latest theories on dating. The smaller format means smaller type and illustrations, but the maps are the same size as in the first edition.

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